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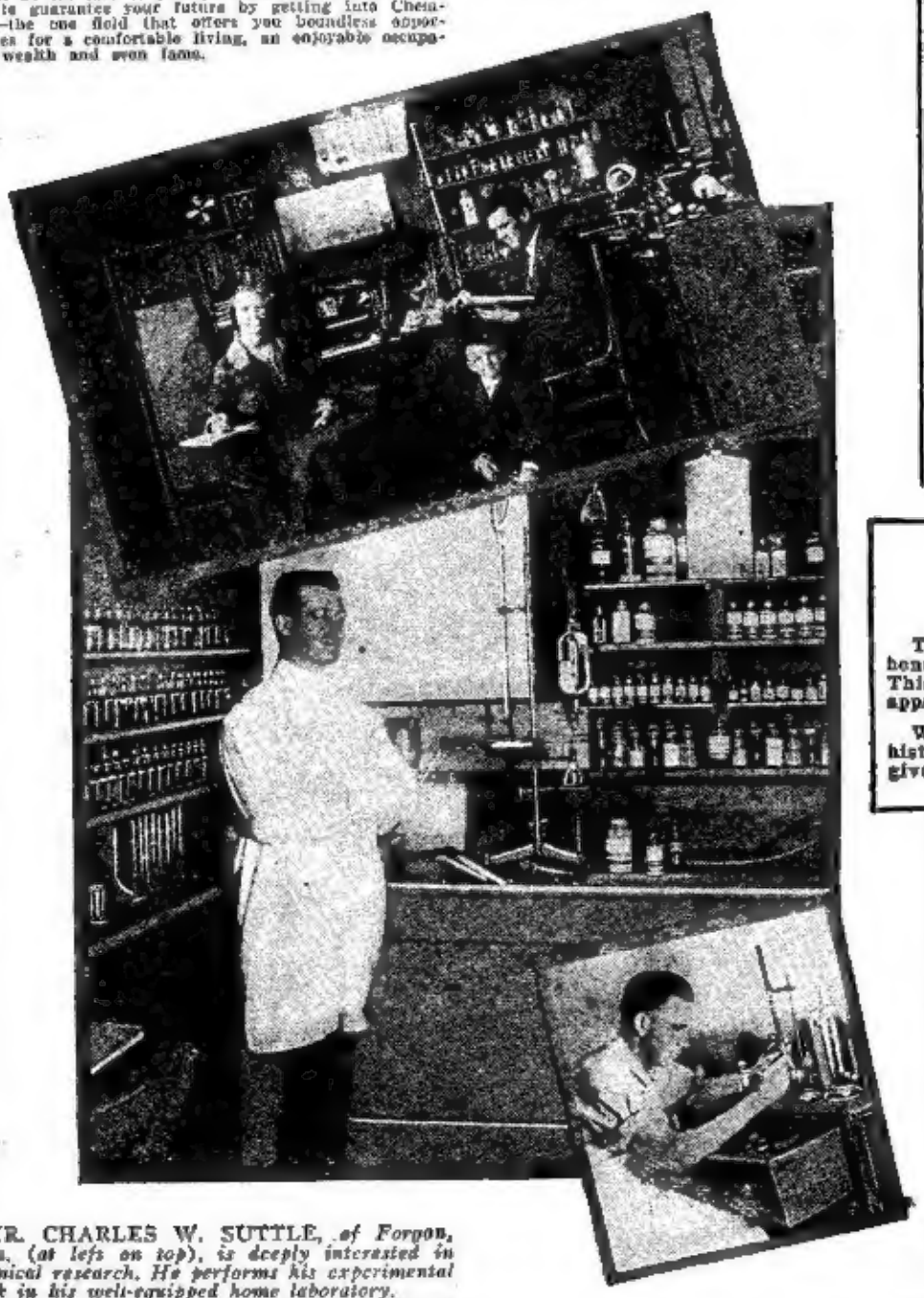

MR. CHARLES W. SUTTLE, *of Forgon, Ohio, (at left on top), is deeply interested in chemical research. He performs his experimental work in his well-equipped home laboratory.*

MR. O. T. D. BRANDT, *of Seattle, Wash. (center photograph), is an analytical chemist of demonstrated ability. In his home he has equipped a laboratory containing several thousand dollars' worth of equipment, bought entirely with earnings from spare-time work while he was taking our course.*

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ON THE COVER

this month from "The Tragedy of Spider Island," by Captain Meek, we see the scientist's young daughter in the toils of the monster spider while her savior is attempting by means of the ray tube to fight off the gigantic animal. The animal's size was produced by means of the secret treatments of the girl's father.

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THE WAR LORD OF VENUS, by Frank J. Bridge. The second installment of this struggle for the domination of unknown Venus brings the contending forces to grips. Our intrepid space travelers have become separated by fortune or fate, and now each of them is engaged in a desperate battle for his very preservation. Many astonishing things are due to occur in this strange world where highly-trained scientists are living together with savages and men hardly higher than the ape!

AND OTHERS.

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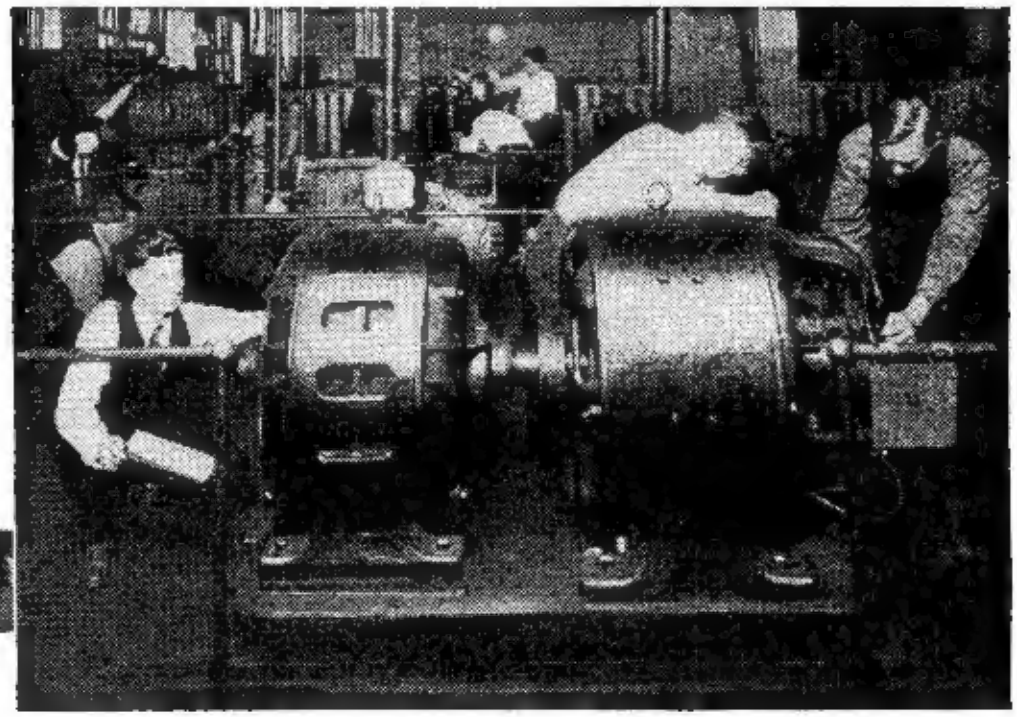

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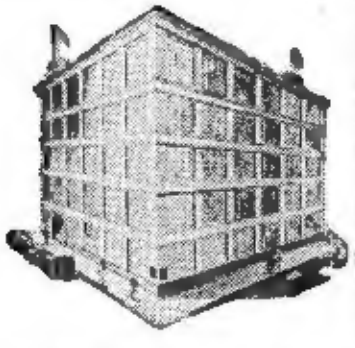

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THE WONDERS OF SPACE-MATTER

By HUGO GERNSBACK

THE Einstein theory, which has been accepted by practically all scientists of repute today, is gradually acquiring new meanings. Professor Einstein is trying to coordinate our separate ideas about the entire physical world to explain the mystery of the cosmos; and it looks as if he were succeeding rapidly. He has already linked electricity with gravitation—a connection that was only dimly discerned by science ten years ago.

He has now tackled the problem of the origin of space and matter, too; and is trying to link his theories with the physical world, as we know and perceive it. But it is the old question of which came first, the egg or the hen? In physics, scientists ask which came first, space or matter? From the very extent of space our reasoning suggests that it must have existed at all times—billions, trillions and billions of trillions of years ago. How, then, did matter evolve out of this nothingness? That is a question that thinking men have asked themselves for ages, and it may be many more ages before we come to the full understanding of the problem, if we reach it at all. At the present time a ray of light pierces our mental darkness, and we have a slight hope that because of it we will, perhaps, come closer to the mystery, if ever so little.

Our physical world, as far as the scientist's vision of it is concerned, is changing from decade to decade, from year to year. At one time, the smallest existing bit of matter was a molecule; later it was thought to be the atom; still later, science claimed that there was a point of division between matter as we perceive it and another state of the existence of matter, which is electricity, and they called the resulting smallest entity the electron. In other words, we were made to believe that the tiniest possible particle of matter was not physical substance at all but, in reality, electricity. It was found that an atom was composed of electrons circling about a core or nucleus. Then it was discovered that the nucleus itself could be broken down, and that it was composed of electrons and protons (the latter being positive charges of electricity). It was also explained that the atoms, with their whirling electrons, formed small planetary systems of their own, which were just as stable as our own solar system.

Recent researches, however, have tended to change this beautiful setup and once more the scientific world is going to school and is learning things anew. It is now claimed that the ultimate sub-division of matter—the electron—is not a charge of electricity, but that this final result of matter is—only a form of wave motion. Just as we have light waves, sound waves and radio (electromagnetic) waves, so scientists now point out to us that all matter in its final state is nothing but a wave-motion. In other words, the sound which you hear, the light which you see and the radio waves which your aerial picks up are all just as real as bricks, or bricks are no more real than they are. The only difference is that they are more sub-divided, more tenuous. A homely analogy will perhaps serve to illustrate the point. Take an ordinary brick and grind it up into its finest possible state. If you use the right sort of machinery, you will be enabled to make such a fine powder of this brick that, if you use a blower and blow the particles up into the air, it will take days and months for the fine powder to come down. Of course, between matter in powder form and matter in wave-form there is still a tremendous difference—a greater difference than between matter in powdered form and matter in its solid state.

We come now to the big point of the new thought in science; and that is, if matter is nothing but a wave-motion, it becomes easier to understand how matter can be created out of empty space. Of course, we have as yet not the slightest idea how it all was done. But, suppose we have a so-called completely empty space, now how waves are set up in this space we cannot imagine. It probably results from stresses in space caused by something that we as yet do not understand. There could be even such a property of space as weight, which by itself could produce stresses and which therefore could give rise to a wave-formation. If this is true, then it would be a comparatively simple step to come to understand how matter can be created out of empty space. And that is what our scientists are working on today, with every indication that we may see some light on the subject in years to come.

The War Lord of Venus

An Adventure Across Thirty Million Miles and Fifty Million Years!

By Frank J. Bridge

I saw the German lurch back against the wall of the cliff, firing his automatic pistol as fast as his finger could work the trigger

IT has been said that Venus is probably in the same stage of its evolution as the earth was fifty million years ago. What a fascinating subject for a story is the experiences of interplanetary explorers on such a strange, young world! The possibilities for adventures are endless, and our author makes use of them to construct a fast-moving, breath-taking mystery story.

(Illustration by Marchioni)

WE were lolling in Von Kressen's library, he and I, and the principal topic of conversation was the new comet that had been recently discovered at the observatory of Paris.

"Comets are funny things," I informed the Von, who had at one time been head of the observatory of Berlin. "Seems they're made of gas and electricity; isn't that right?"

"Rare gases, yes. And it is true that there seem to be electrical radiations present in comets."

"And its tail is turned by the pressure of sunlight. Hmph! Feathers haven't got a look-in for lightness, compared to a comet's tail, eh? Say, how does light get that powerful, anyway?" I wanted to know.

The German leaned forward in his rocker. "I'm glad you asked that question—that's just what I've been studying for some time now. The repulsive force of light is due to—what shall I call it? I could hardly say emanation, because light itself is an emanation—but, the thing is—a certain ultra-violet ray, the identity of which I keep secret for a reason you will eventually learn, possesses the power to repulse tiny particles of matter. It is the propulsive power of this ultra-violet ray that turns the train of a comet away from the sun. I have isolated this ray, condensed it, and made several experiments with it. I found that the action is effective only when electrical vibrations are combined with this radiation. The electricity in a comet's head gives this secret ultra-violet wave the power to keep the gases forming the tail pointing away from the central luminary.

"From tests made in my laboratory, I know that this ray, when isolated, condensed, and combined with certain electrical waves, has the power to lift enormous weights from the ground. I have lifted as much as one hundred pounds a distance of three feet from the floor. And that was only a small apparatus, and not a very powerful beam, compared to the tremendous energy that could be accumulated."

I was silent a moment. "Whew!" I exclaimed then, "think of having this stuff to run our automobiles and airplanes! Would it cost much to bridle this energy?"

"No. After the apparatus to accumulate it is constructed, the energy itself would cost practically

nothing. In fact, as soon as I can accumulate more of these rays, I expect to undertake a voyage to the planets—Venus first."

"Well," I laughed, "I suppose you've got the whole trip mapped out? Probably even know what to name your star-flyer."

"I haven't all the necessary details, but I'm going to name my machine the *Flying Dutchman.*"

"And the public will call *you* Von Kressen, the Flying Dutchman," I opinioned.

"The public will know nothing about it until it is all over. First, because others might learn my secret and beat me to an interplanetary voyage, and second, because I don't intend to be laughed at if my machine *should* fail to operate. Knowing you as a writer, Marx, I realize that you will be aching to spill the story to the public. Very well, you may narrate the events of the journey, but I absolutely forbid you to publish the details concerning the ultra-violet ray which will be the propulsive power of the star-ship."

"Narrate the events of the journey?" I echoed. "Are you taking me with you?"

"Certainly. You wouldn't miss an interplanetary voyage for all the wealth in the world, I know that. Besides, in your role as explorer, archaeologist, and historian, you will be of inestimable value to us."

"Who's all going?" I wanted to know.

"You; Parri, the French astronomer; Throck; and I."

"When's this going to be?" I demanded.

The Von shrugged his shoulders. "Date indefinite—but as soon as I can build my space-ship."

* * *

FRANK J. BRIDGE

Four months passed. I had put in the time exploring a newly discovered cliff dwelling in Arizona, which dated back about six thousand years. Then, loaded down with ancient pots, vases, spear-heads, and stone axes, I returned to the Archaeological Department of the National Institute at Washington, deposited my findings and reports, and called on Von Kressen.

After the greetings, I asked how the proposed trip to Venus was coming.

"Fine!" he assured me. "At my farm in Germany the *Flying Dutchman* is nearly finished, and my ray-reservoirs are filled. A great many of the necessary machines are finished, and in about a month I expect to have the ship assembled, provisioned, and ready to start. You'd better get a leave of absence immediately, else they'll send you off to God knows where, and we'd have to wait until you return before we could start for Germany."

"Why Germany?" I questioned. "Can't you bring your contraption to this country?"

"I could bring it over here all right, but since the coming transit of Venus is invisible in America, and since I have a definite reason for starting our trip during that transit, the most advisable course for us to follow is to leave for my farm in eastern Germany, where the transit will take place exactly at noon of June eighth."

The Party Complete

ACTING upon his suggestion, I presented myself at the Institute and asked for a leave of absence of indefinite duration, saying that a friend of mine proposed a trip to a locality he forbade me to divulge. I said, however, that should we find anything of archaeological or anthropological value, I would present these to the institution, provided my friend permitted me.

The Chief raised a big kick at first, stating that he'd had a trip to Greenland all plotted for me, and now I was going away on some half-baked expedition and leaving him flat. But after I had argued and expostulated with him for about forty minutes, he at length consented to let me go.

Immediately I returned to the home of the astronomer and physicist, and informed him that I was free to accompany him. Just then the door opened and another friend of ours, Raoul Parri, a French astronomer, entered.

"Say," was his first demand, after we had exchanged greetings, "is this a pay-as-you-enter proposition? What's our fare? How much do you charge us poor devils per mile?"

"Answering your first question, I may state that this is a *pray*-as-you-enter proposition, and therefor all heathens and untutored savages are emphatically excluded. Since I somewhat doubt your ability to pray, I am in something of a quandary as to the advisability of taking you along on this precarious undertaking. As to your fare—well, let me see—I *should* charge you one cent a mile, making each ticket $260,000.00, but I'll let it go for a quarter million straight," the Von affably informed us. "Do you want upper or lower berth?"

"Aw, can that nonsense," I growled.

The Frenchman turned toward me. "He said he's got a wave—he'd better quit hanging around beauty parlors, don't you think? The old boy is fifty, isn't he? And yet he insists on having a permanent wave put into his venerable locks. Young ideas. I'll bet I could count all the hairs on his head on the fingers of one hand."

"Sure," agreed Von Kressen, running his hand through the grey mane that covered his head, "if you could count that far. Well," he said, business-like now, "are you boys coming along or do I go alone to Venus?"

"De Milo?" asked Parri. Then to me, "We'd better go along to take care of him. If he sees some of these proverbial Venusian beauties sporting around in Sylvan glades, *et cetera*, he's liable to think he's Apollo, or Adonis, or somebody else of that clan. I'd hate to think of some mermaid luring him to playing tag with the sharks."

Von Kressen spoke up. "There's one more going with us—Dr. Wilbur Throck, the English physician

and bacteriologist."

"Holy Smokes! Are you trying to establish a League of Nations on Venus?" I queried.

"Throck might come in handy," replied the German.

"How?" asked Parri.

"From what little we know about Venus, it's quite likely that the existing atmospheric conditions breed diseases unknown to us on Earth. So if we have someone with us who is versed in bacteriology we have a chance of overcoming these sicknesses. Throck, having a good knowledge of terrestrial bacteria and infusoria, can more readily cope with any strange ones we may encounter on Venus," explained the German.

Raoul turned a wry face to me. "Hear that? Wants to go flying around the stars just to study bugs and germs. If I want to contract any disease, I'll just spend a couple of days in a nice stinky swamp with a bunch of playful mosquitos for company."

Presently Throck came in.

"Hang it all—do I hear correctly that you, Mr. Von Kressen, are contemplating an interspatial voyage to Venus?" he asked.

"You do *not* hear correctly. You *heard* correctly. I advise you to wind your watch. It is twenty minutes since I 'phoned to you," the Von corrected the newcomer

After a minute's silence during which Throck digested this, the Englishman spoke up again, demanding what our host meant by "going to Venus—hang it all." Von Kressen waved us to several chairs and prepared to give us again the basic principles of his idea. He said, in short:

"I had always wondered what gave light the power to press a comet's train away from the source from which the light emanated. It is commonly supposed that this is a manifestation of the electro-magnetic action of light, and I believe so myself. All light has this repulsive power to some extent, but a certain range of ultra-violet waves possesses this power to a greater extent than any other wavelength, visible or invisible.

"I managed to isolate, confine and condense these waves, and learned that if a certain range of electrical waves was sent through it, this ultra-violet ray would become active in its repulsive power. Its intensity, and consequently its action, can be controlled in one way by the kinds of windows used.

"In a recent experiment, I succeeded in lifting five tons from the ground, using a gypsum window two millimeters thick, a comparatively weak ultra-violet beam, and not the best range of electrical rays. This last experiment shows me that it will be easy to lift twenty or thirty tons, using clear, colorless fluorite windows one millimeter thick, a powerful ultra violet beam, and a powerful electrical vibration. This leaves the construction of my space-flyer a mere matter of mechanical detail, and that, as you know, is nearly completed."

There was a moment of silence, during which the Von permitted the weight of his words to sink into our minds. Then we scraped our chairs, looked at one another, then at our host. Presently he spoke again.

"Professional jealousy, I must admit, has kept me from giving my invention to the world. I want to amuse myself with it first, then, if I desire, the world may have my secret. In choosing my companions for the Venusian voyage, you will have observed that out of a dozen fairly close friends, I have taken only acquaintances who may be useful in such an expedition. I, as inventor of the machine, must of course go along. Raoul Parri here is to take control of the space-ship while I rest. Dr. Throck can take care of our bodily ills during the voyage and on our sister planet. His work is to inoculate us against diseases, if we should be stricken with any, provided that they come within his scope of knowledge and study. Kenneth Marx is taken as historian of the trip; and in his knowledge of archaeology and anthropology can inform us as to what races of people we may come in contact with—assuming, of course, that there are human forms on Venus.

"From his experience he knows considerable of the psychology of ancient races, and we can prepare for battle or peace, whichever he tells us is a characteristic of the human forms we may meet. Lastly, as a veteran explorer and hunter, he can give a good deal of information as to geological conditions, botanical life forms; he is versed in the symptoms of diseases in different climes, and as he is an excellent shot, can bring in food for us, as well as take command of the party should we brush against any savage tribes on the surface of the yellow planet."

I must confess that his enumeration of my virtues sounded good, but that I am a hypocrite is evinced by the fact that I acted embarrassed when I was in reality enjoying his eulogy of my prowess.

Finally the meeting broke up, Von Kressen reminding us to collect the clothes we thought necessary; as well as the implements and tools that advertised our professions. I had told Von Kressen to buy a number of heavy rifles, shotguns, and revolvers, while I took my personal guns, and managed to procure four automatic rifles and a machine gun from the War Department of the Government, after proving that I was a Government employee, bound on a dangerous exploring expedition. There was a good deal of red tape to go through—the bothersome official wanted to know where I was going, and so on, and I had the very devil of a time keeping the truth from him.

At last my share of the final preparations was completed, as were those of my companions. The *Flying Dutchman* had been finished, and only a few of the interior fixtures and necessities awaited installation, as I learned from the Von, who had received a cable to that effect from a friend in Germany, who had undertaken the construction of the star-ship. It would take about a week more and we would sail for Europe and our Great Adventure.

CHAPTER II

Getting Ready

THAT last week seemed to be the longest I ever suffered. Contrary to the expectation that a lot of last-minute details would keep me occupied and in a flurry of excitement, the hasty accumulation of my supplies in the preceding weeks left me high-strung and chafing at the prolonged inactivity.

And then!

The 'phone tinkled insistently. I grabbed it eagerly. I reckoned it would be the Von, but even if not, any message would be welcome to break the nerve-straining monotony.

"Hello Ken!" came the voice of the Flying Dutchman, as I occasionally termed the inventor of that machine.

"Hello!" I shouted back eagerly.

"Come over seven o'clock tomorrow morning so we can take a train and make the *City of Weyland* from Norfolk in the afternoon. We leave the States at three forty, and steam without a stop till Liverpool. From there we take the yacht *Gull* to Bremen. Then to my *Bauernhof*. In ten days you'll see the *Flying Dutchman*. Bye-bye. Put in a *little* sleep tonight."

Despite his admonition, I doubt if I slept a wink that night. I heard the church clocks strike every hour, and I don't think I dozed between times either. And at four-thirty in the morning I was up, washing, dressing, and gulping down a brief breakfast of bread and milk, the latter still cold from the ice in the milkman's wagon, and left scarce ten minutes before.

While the ensuing two hours dragged by I gathered all my luggage, ordered a cab for a little before seven, and waited. At last my watch registered fifteen minutes to seven, and the cab drew up outside. I charged out of the house, fired my bags into the machine, locked my rooms (my little cottage, rather), bounded into the car, and was swirled away to the Von's home.

Seven minutes later I dashed into the German's library, where I found him conversing with the impatient Frenchman and the bacteriologist. As soon as we had greeted, we again went to the respective cabs that had brought us hither, and were driven to our railway station, where we waited impatiently for the train that was to take us to Norfolk and our steamer. Once on the train, each of us inventoried the various articles he had brought along, and then assured that all was in proper order, we begave ourselves to silence and earnest reflections concerning our approaching adventure.

Promptly at three-forty the ship's screws began to churn the water beneath, and with the assistance of several tugs we left the harbor in orderly manner. I need not recount the five uneventful days we passed in crossing the Atlantic, for each one of us had made the trip at least once, and there was nothing new in it. We made our change at Liverpool, and early in the morning of the eighth day since we last gathered at the Von's house, we arrived at Bremen. Here we experienced more trouble with the German authorities, but at length we got through this also, and in the following two days we traveled through the length of the German republic to the Von's farm, where all was in readiness for our star-trip.

"Well," smiled our host, the morning after we had arrived, "I imagine you are somewhat anxious to see the *Flying Dutchman*, yes?" He waved a hand at the barn wherein the star-shell was kept. With Throck, Parri, and myself chattering excitedly, he led us toward it.

The *Flying Dutchman*

ARRIVING at the structure, our friend opened a door and led us to a great workshop built into the barn. The room was about forty feet long by thirty wide, and along one wall lay a great *thing* of shining metal. Van Kressen switched on the electric lights, and then led us toward the glistening, submarine-like object. Looking at it from the outside, it was slightly more than thirty feet long, and not quite spherical in shape. Rather, it was flattened on top and bottom. Its crosswise diameter was perhaps fifteen feet, and its vertical diameter about twelve. At each of the rounded ends was a circular window about two feet in diameter. Starting from these two points ran four rows of smaller windows about one foot in diameter each. One row ran along the top of the projectile, another just opposite it, along the ship's keel, so to speak. On each side, midway between the top and bottom rows, ran another. Circling the shell in the middle ran a similar row, while about five feet from each end, just where the flyer tapered to the rounded extremities, another row of fluorite windows encircled the metal monster. Thus it was possible to discharge the repulsive light in practically every direction, creating a propulsion in the opposite way.

So much for outward appearances.

Within, the form was similar to the outside, though of course in lesser dimensions. Its inside diameter measured twelve feet horizontally and nine feet vertically, and its length was thirty feet. Between the inner and the outer shells was a space free of matter, but which contained the imprisoned propulsive rays. Von Kressen never divulged how he could retain a *wave-motion* captive like matter, but I think that the chambers into which the ultra-violet light was directed simply reflected the waves indefinitely from wall to wall.

Lining the walls were box-like tanks which held more of these rays of propulsion; at the forward and at the rear ends (I say forward and rear, though there was no distinction, the ship being built to run one way as well as the other) were air tanks. There was a unique sort of ventilating system within the car also—the air issuing from the forward tanks was slowly swept backward by an artificially induced draft, and the bad air we exhaled was taken back to a sort of filtering apparatus, which divided the exhaled gas into its component parts. These were later reunited in correct proportion, the necessary amount of oxygen added, and passed forward, where it was released again for rebreathing. Thus we could breathe the same air over and over, without discomfort, and only a small amount of the various gases had to be taken along.

Running along the sides, the top, the bottom, and around the flyer in three places were searchlights—anyway, they looked like searchlights—one of them under each of the fluorite windows. These lamps projected the repulsive rays and the electrical waves into space. There was a shutter-arrangement in them, so that the escaping beam was ejected in a series of invisible flashes, each "kick" shoving the *Flying Dutchman* in the opposite direction. The wires controlling

the lights ran behind the walls or under the floor, gathering under a table in the middle of the ship. The top of the table looked something like a telephone switchboard, for there were many numbered keys on it, these running in four rows in the direction of the flyer's length, two isolated keys on either end, and three rows ran at right angles to the others. Each of these keys controlled one of the projectors behind the fluorite windows. A quick press on one would cause one "explosion" of the corresponding lamp; holding the key down caused a continuous stream of emanation until the key was let up; and if a steady flow of propulsion were desired, a little metal clip held the key down until released.

At one end of the machine was a little room containing two berths and a supply of food, another at the other end contained two berths and an equal amount of food. In the central room were the armament closets, bookshelves, and the little kitchenette.

Our survey completed, we filed out of the ship and turned toward the Von.

"Tomorrow, at noon, gentlemen. Noon—just when Venus is in conjunction."*

We nodded, and with final glances at the metal ship with the name *Flying Dutchman* painted in English on its prow—or was it the prow?—left the barn in silence.

Noon, June 8th, 2004!

Congregated within a well-lighted chamber in a metal space-flyer were four men—Ludwig Von Kressen, the German astronomer and physicist; Raoul Parri, the French astronomer; Wilbur Throck, the English physician and bacteriologist; and I, Kenneth Marx, American archaeologist, explorer, and author. The *Flying Dutchman* lay in the open field behind the barn, about it crowded a curious mob, held back by the dozen workmen Von Kressen had employed in constructing the star-ship.

The inventor moved the intensity-lever on the instrument table, and carefully selected the keys with which he would open the voyage to our planetary neighbor, 26,000,000 miles away.

Bong!

The single stroke from the clock on the wall was the signal.

Confident in his ability, the Von pressed several keys. The rocket tilted at an angle of about 45 degrees; we clutched at various objects to keep from falling; then suddenly the star-flyer leaped upward, jarring us from our holds, to fall into a tumbled heap at the rear end of the ship. Von Kressen was in a sling fastened to the operating table, and so did not share the misfortune of Parri, Throck, and myself. Realizing that we were as well off as possible in our present position, we three remained there, while the rocket slowly assumed an angle of 90 degrees to the plane of the field we had just left.

We were on our way to the yellow planet, Venus, hidden behind her veil of dense clouds. Yes, we were on our way—to *what?*

* Venus is in a direct line between the earth and the sun.

CHAPTER III

Off to Venus!

FIVE minutes slipped away. Then Von Kressen looked down at us where we were tumbled against the rear wall of the control cabin.

"Kenneth, you and Raoul go down into your room and look in your bunks. You'll find a sort of harness there; put 'em on, then come back and I'll tell you how to use 'em."

I crawled to the doorway of the rear "bedroom," which Parri and I shared, and dropped through. Hanging from a hook on the side of my upright berth I found a belt about three inches wide, on the outside of which were many small quartz bulbs from which emanated the now familiar repulsive ray. Over the shoulders fitted two straps which placed the ray-belt slightly above the trouser belt, while a number of shorter straps could be attached to the waist belt, keeping the strip of bulbs always rigid. The whole belt was about an inch thick.

When we had fitted these "harnesses" about us, Parri and I clambered up the rope ladder that dangled into our room, into the central cabin.

"All set," I told the Von.

"Well, do you see that metal box on the front of the belt? If you want to rise, move that little lever to the right—the faster you want to rise, the further you move it beyond that middle point marked 'N.' When you want to descend, move the lever to the left, toward 'S.' And when you want to remain stationary, wherever you are, put that lever at 'Neutral.' I just finished those belts personally yesterday, so I couldn't explain 'em to you then. Now suppose you go up to my room and bring down the belts for Throck and me?"

Parri and I slowly moved our control levers to a little past the Neutral point, and slowly we ascended into the air of the upright room We floated upward past Von Kressen at the instrument table, through a doorway above our heads, and then we shoved the levers to N as we took down the belts hanging on the berths, next we shoved them to a little left of N, and gracefully descended again. Parri handed the German's belt to him as we drifted down, while I came to rest beside Throck, and assisted him in adjusting his harness.

Then I placed my lever to N, and moved easily about the room, propelling myself with slight pushes on the walls. The sensation was not just as if one weighed nothing, for gravity still affected one, but it was unnecessary to exert one's muscles much in order to travel gently from point to point.

The Skipper, as we distinguished Von Kressen occasionally, had adjusted his own harness and now crawled out of the leathern sling that had been his seat.

"We're doing fine now," he said—"2,083 1/3 miles per second! In eight minutes we'll have gone a million miles. At this rate we should land on Venus in 3 hours 28 minutes—about three and three-quarters, considering that we'll slow down while driving through the planet's atmosphere."

He wafted himself aloft to fuss with the air tanks, while I, curious to know how he could measure his

speed in space, floated to the speedometer and the various instruments that controlled it.

The instrument is in a way the largest in the car. At the front end of the ship, slightly above the fluorite propulsion window, is a lens, which can be turned in any direction except down and back. Behind the lens is a small telescope, which was now fixed on the sun, and some inches from the eyepiece was a screen, on which was thrown an image of the luminary. Crossing the screen in the middle, at right angles to each other are two wires of a greyish metal which the Von later told me are selenium. Fastened to the under side of the wires, and leading out of the screen through an almost invisible slit, are a number of very, very fine silver wires, which run to an electric calculator the Von had devised. The most important part of this calculating machine is a clock, which is connected to the various other parts of the machine. From the clock on the wall of the cabin, other connections lead to the calculator. The figures which the machine automatically clips out are reproduced on two dials on the instrument board, the one giving the distance traveled, and the other the speed.

My inspection of this apparatus finished, I gave myself a shove and glided toward the Von, who was shoving aside a metal, circular plate on the wall. Then he touched a button, and another plate outside the ship flew back, enabling us to see beyond, into the starry void without.

Rapidly dropping away from our stern was the Earth, a gigantic disk, of which we could see about half, from our position high up on the side of the ship, filling about a third of the window. In a few seconds it sank from our view altogether, and we looked only on the multitude of stars that shone steadily through the eternal night.

The Landing!

A MINUTE passed since we had reached the pace that the Skipper would maintain throughout the journey—2,083 1/3 miles a second—and the distance meter informed us that we had gone 125,000 miles in that time. The thought stunned me. Five times around *the Earth at the equator, in one minute!*

That minute drew itself out into two, three, four, five—eight minutes, and a million miles had slipped away beneath us. Throck, Parri, and I floated before a number of "open" windows and regarded the star-strewn depths of infinity that yawned on every hand; the Skipper hovered between the instrument table and the eyepiece of a long refracting telescope that aided him in steering the *Flying Dutchman* through the Cimmerian void.

Thus the minutes dragged themselves into an hour, that hour into another, and presently into another. We grew excited again as we realized that another half hour would find us plunging through the atmosphere of our sister planet, now less than four million miles away from our projectile. Now the Skipper began "exploding" the forward lights to act as brakes, and our per second speed, in fifteen minutes, decreased to five hundred miles. The rear lights were shut off altogether, and only the forward projector was used, so that we entered the upper strata of the Venusian atmosphere at the easy rate of one mile a second.

Came a dive through two hundred miles of air, and then we struck the water of a great sea fading away on every side to a cloud-veiled horizon we knew not how distant, but which we knew must be about as far as a Terrestrial horizon because of Venus's similar dimensions.

"A perfect trip, fellow-voyagers! Three hours, forty-six minutes, and thirty-seven seconds to travel 26,010,713 miles. We will drive along the surface of this sea until we find some solid ground upon which we can disembark and set foot for the first time upon this planet, whose dense clouds have veiled her in perpetual mystery."

So spoke Von Kressen to us where we stared out of the portholes at the restless, slowly swelling sea that lay about us. He touched the button that controlled the propulsive ray of the rear fluorite window, and we glided forward while the grey waters behind were churned and sprayed and torn by the power of the mysterious, though common emanation that our captain had made his obedient slave.

"Hang it all—give us some of the salient facts about Venus," suggested Throck, "so that we can prepare ourselves for the unusual conditions existing upon this planet."

"Venus," began the Von obligingly, "is the second planet of the Solar system, for as yet no one has proved the existence of the mythical Vulcan, which was at one time supposed to revolve about the sun within the orbit of Mercury. Venus is 7,700 miles in diameter, is 67,200,000 miles distant from the sun, revolves about it in 225 of our days, and its own day is 23 hours, 21 minutes long. The inclination of its axis is level with the plane of its orbit, that is to say, the planet rolls on its side like a ball, so to speak, and always keeps its poles pointing in one direction. Thus at one point of its orbit, the planet's North pole is pointed directly at the sun, and is the hottest part of the globe. At the immediately opposite side of the orbit the South pole points directly at the sun, while halfway between these two points the equator reaches the place nearest the *great luminary. It is presumed to harbor creatures* such as existed on our own Earth in past ages, but this assumption has yet to be verified."

"It *is* verified," broke in Parri, pointing out of a window, "Look!"

We crowded about him and looked out over the water. Twenty feet distant from us a shovel-shaped head towered and swayed on top of a long, thin, snake-like neck. It was the first living plesiosaurus that I had ever seen, but I had to marvel how our paleontologists had succeeded in reconstructing this creature with such wonderful accuracy.

Suddenly another creature shot down from the low-lying, rain-filled clouds; a gigantic pterodactyl, with a perfectly enormous wing-spread. Fully seventy feet stretched the great wings, as their possessor shot at the long neck of the plesiosaur. But the other dived its head and neck under the water, there came the churn of the great flaps, and the creature was gone. The long, toothed jaw of the flying lizard entered the water

after the sea-reptile, apparently found a hold, and in a moment the entire pterodactyl had followed the other into the ocean. A moment later the attacker reappeared on the surface of the water, stretched its leathery wings, and soared away with a good-sized chunk of meat in its dripping beak.

"Say, don't you think we'd better get away from this locality? If any plesiosaurus or ichthyosaurus should slam up against our fluorite windows, they'd smash the whole projector, then how would we get back to Earth?" I said.

"By Golly, you're right, Marx. We'd better move on," this from the Skipper. He moved the intensity lever, pushed a button, and we rose from the water, to fly in a westerly direction at a distance of perhaps a hundred yards from the surface of the planet.

"Hang it all, do you think all Venus is covered with water, and has no land at all?" Throck asked me.

"I don't believe so. The pterodactyl, while amphibious to a slight extent, cannot altogether live on water, and so it is quite likely that there are places where the ocean floor is above the surface of the sea," I replied.

The First Man on Venus

PERHAPS a thousand miles had passed beneath us, in about ten hours, when land loomed up dimly through the distant mist. A moment later we were sinking to a level field on a low mesa, while below and around it flourished a great jungle of the Mesozoic age. In a little clearing of the tumbled maze three fierce-looking triceratops were feeding on the lush jungle grasses that grew about them, and a hundred yards away a great ceratosaurus fed on the carcass of a freshly killed trachodon. Now a titanic allosaurus leaped upon a long-necked, peaceful diplodocus, and here a nimble thescelosaurus battled with a sluggish-moving stegosaur. On every side Life and Death moved hand in hand; the more peaceful, herbivorous lizards gave up their lives that the fierce meat-eaters might live.

Everywhere was shown the first inexorable law of Nature—Death must be present that Life might continue. Thus it has always been, thus it must always be.

Now we had come to rest upon the soft loam that covered the little plateau, and the momentous question was—who would have the inestimable honor of first setting foot on savage Venus? First Parri, Throck, and I had voted that the Von, being the inventor of the space-ship, should first step out upon the planet, but he said that as each one of us secretly desired the honor, every one should have an equal chance, so he brought out a deck of cards. These he shuffled and placed face down on the table.

"Whoever cuts the highest card," he said.

Parri cut first—and brought up the Queen of Clubs. We agreed that he had the case pretty well cinched, but I drew, nevertheless. And I was glad I did—for I brought up the *King of Hearts*. Throck cut after me—and came out with the *King of Diamonds!* We would have to cut over again. Now Von Kressen cut the deck, but had only the seven of spades.

The deck was shuffled again, and again I cut.

Trey of Clubs! Bah!.

Throck laughed. "Hang it all, boys, open the door for me!" he grinned as his hand moved to the deck. He cut, held it face down a moment. "Hang it all, I think I'll take possession in the name of the King of England," he ruminated. You see, Throck had at the time of our planning the interspatial trip been studying the methods of American physicians, so was still a loyal British subject.

"Turn up the cards—for God's sake, don't keep us waiting," exclaimed Parri.

With a confident smile Throck turned up the cards in his hand very slowly, and showed—the Deuce of Spades!

"Wheeeeeeeee!" I shrieked, and dashed to the armament closet, where I unslung an automatic rifle and buckled my six-shooter about me. The others followed my example, and then I stepped to the door of the *Flying Dutchman*. Von Kressen opened it, and I stepped through and my foot touched the moist loam that covered the little mesa. A queer emotion struggled within me—the first man to step upon the planet Venus.

Behind me was Throck, then came Parri, and lastly Von Kressen. We were all assembled together outside the star-traveler, while above us circled half a dozen pterodactyls—like the ghosts of a time and a world long since dead and forgotten.

"Ten million years into the past," breathed the French astronomer as he looked up at them, *"Ten million years!"*

CHAPTER IV

A Killing

THE temperature of the planet was about 95 degrees F., I imagined, and the high percentage of humidity made one feel sticky, bloated, uncomfortable. The air was throbbing with a hundred different sounds—the humming and buzzing of a million insects; the harsh, discordant cries and the voluminous hissings of a dozen nearby saurians; the gurgle and swish of a running brook; the low thunder of the surf half a mile away; the whispers of the lush ferns and grasses; the groaning of the more solid trees as they bent beneath the whispering, moaning, soughing breezes. All this magnified by the dense water-vapor in the thick Venusian atmosphere.

"Well?" I laughed, turning to the Skipper, "What now?"

"We will explore. You and Raoul can go first—just see if there is any way we could be attacked up here."

"Hmph!" growled Parri, as he and I began a circuit of the little plateau, "Hear that? He's looking for a fight already. Wants to know if anybody can come up here and start a scrap."

Presently we came to a natural stairway that led to and from the mesa. It was narrow and steep, so that any party of men climbing or descending it had to do so carefully and in single file. At the base of the cliff, which was about a hundred feet higher than the level of the ground beneath, several trees lifted their heads to the rim of our sanctum, but we did not deem it likely that anything would be able to reach the table-

land from them.

Coming back to the *Flying Dutchman*, we held a council at which it was finally agreed that two men should take one of the small movie cameras and sally forth into the primeval Mesozoic jungle to obtain photographic specimens of dinosaurs, as proof of our journey, to be used as soon as I opened the narrative to the public. So Throck and I set forth together to gather data on the existing climatic conditions, probable diseases, determine how long we could stay, do a little exploring of the neighborhood, and procure photographs of all animal life we encountered. Warily the physician and I descended the rocky stairway leading to our haven, and entered the carboniferous forest that swayed about us.

After a hundred yards of careful stepping through low, marshy ground overgrown with tangled fern-trees and similar verdure, we came to the little brook whose gurgling we had heard on the mesa. This stream seemed to originate on a neighboring hill a little to the left of, and not quite as high as that on which the star-shell rested.

We decided to follow the stream to its starting place in the hope we would find clear water there, for at the point we came to it, the brook was stagnant, muddy, and slimy. Accordingly we set off toward the left, following the creek, till we came to a watering-spot where in the thick, soft mud we found the footprints of nearly every form of animal life Venus harbored. Mingled with the split hoofs of the Triceratops, the talons of the flesh-eating lizards, the claws of the cave tiger, and the webbed feet of the amphibious air-reptiles we discerned also the toe-marks of the small, prehistoric camel, and—at last—the footprints of the tiny, five-toed horse.

Leading away from the drinking place, on each side of the brook, was a broad path where countless creatures had come for many years and beaten down the thick verdure in their quest for water. Taking the one on our side of the stream, we followed it some hundred feet, then branched off again to the right and the hill. This we reached after forcing our slow way through the tangled marsh plants, and found, as we expected, the brook tumbling from a narrow crevice in the soft rock. At the base of the little waterfall a pool of muddy water had accumulated, and there we saw the first truly Venusian animal. It was almost exactly like an Earthly crocodile in many aspects, with the exception that on its nose was a great curving horn, like that of a rhinoceros, except that it measured only about a foot in length. The whole reptile was about twelve feet long, and its color was a greyish green.

Throck unslung the automatic camera and pressed the button. The crocodile (as we called it for the sake of convenience) had been feeding on the fern-like growths at the pool when we came up, but now, after staring at us stupidly a moment, it emitted a steam-engine hiss and slid into the water, swimming in our direction. It opened its mouth once, and I saw that both jaws were movable; its front teeth were long and sharp, while the rear were broad and flat.

As the creature neared us I moved off toward the left, Throck remaining where he was, and then taking down my rifle, aimed carefully at the slow-moving reptile's right eye and squeezed the trigger.

The crocodile gave a final lunge which carried it to our shore, where it lay still save for a spasmodic switching of the strong tail. I turned toward Throck, a smile of elation on my lips, which was at once frozen when I saw my companion tottering on the edge of the pool, both hands clutching his left shoulder, from which spurted and rushed a thick stream of blood.

I rushed to his side and caught him as he lunged forward. Then I lowered him gently to the ground and took a hasty glance across the stream. Whatever had struck him had come from that direction. But I saw nothing, and so, assuring myself that there was no other presence in the immediate vicinity, I examined the wound of the now unconscious man. It was torn, ragged, and bleeding profusely, and was about an inch deep. Correctly assuming that it had been made by a rough, angular missile—a ragged stone, no doubt—I looked about me for a sign of the weapon, and shortly espied it in the grasses to my right. It was, as I thought, a rough stone which could only have come from a sling, since not only was there no stick attached to it, but such an ungainly object when fastened to a wooden shaft would invariably swing the missile wide of its mark.

Following the Trail

WHEN I had hastily bandaged Throck's wound with our handkerchiefs, I laid him across my shoulders and made my way carefully to the dinosaur trail, which I followed to the creek, and finally back along our first path to the mesa harboring the *Flying Dutchman* and our two other companions.

We placed Throck in the ship, and Von Kressen set up a sort of filtering apparatus which drew as much humidity as possible out of the air, for we desired above all else to minimize the chances of Throck's developing a dangerous fever. Screens had already been put up to keep out the thousands of insects, and we kept the air within the shell as cool as we could. Next we attended to the physician with his medical kit, braced him with a shot of quinine, and let his powerful constitution do the rest.

Then the Von, Parri, and I examined the rock, which I had brought along, finally agreeing that the perpetrator had been of a race similar to that which had flourished on Earth during the third interglacial period.

By the time we had decided this we all felt hungry, and so ate our evening meal—evening on Venus as well as on Earth, for the humid atmosphere of the planet was rapidly assuming a coppery twilight that always precedes the Venusian night. The sky during the nighttime is either a sullen copper with a slow, warm rain, or it is excessively black save when lighted momentarily by vivid lightning flashes. But always there is rain.

The thunder crashes, as I later learned, were simply frightful, but within the car we slept very well, since no sound could carry through the vacuum space between the inner and the outer shells of the flyer, and very little seeped in at the points where there were any connections between the walls.

The dawn of our second day on Venus came, by our

watches, about 1:00 A. M. The Skipper cooked our breakfast, and Parri took a tray of food to the physician, who was awake and doing fairly well. When we related to him what had happened and what measures we had taken in his case, he said he felt sure he could direct his treatment himself now, which he did.

For three days we seldom left the plateau, staying inside the space-ship most of the time. Then one day Parri made a trip to the neighboring hill for clear water—*and did not come back*.

Since Throck was now able to walk about and help himself, it was made out that he should remain in the star-ship while the Skipper and I set out to search for our missing friend. Accordingly, each of us armed himself with an automatic rifle, a revolver, hunting knife, plenty of ammunition, while the Von also took a compass and a camera. Then we climbed down the cliff and made our way to the waterfall, where we expected to find signs of Parri's recent presence. And we did. In the soft loam where Throck had been wounded four days before, we found marks of a violent struggle, several hairs which may or may not have come from Raoul's head, and a large strip of cloth torn from his shirt. The ground was stamped by many naked feet, examination of these footprints showing that the men who made them were of arboreal habits to some extent, as shown by the long toes and the slender great toe extending at an appreciable angle from the rest of the foot. I could not just place the race to which these men belonged, since I had never seen just the same footprints on Earth, but I judged that they belonged to some form of the so-called Piltdown man.

Von Kressen and I tracked the party, which numbered seven or eight barefooted attackers, two of whom were carrying the body of Parri. From the regularity of the paces we deduced that the prisoner had been lying quiet, which led us to believe he had been either unconscious or dead.

No incident of importance occurred during the day, and nothing stopped us from following the party, which made no attempt to cover its trail. We made two short stops for hasty lunches, then pushed on after the captors of our friend. But they traveled fast, and although we found signs of two short rests on their part, the Venusian night overtook us ere we caught a glimpse of them.

It seemed that the elements had been waiting for nightfall, for barely had the murky twilight deepened into night than there burst on the carboniferous landscape the most terrific storm I had ever seen. The water gushed down—not in sheets—but in solid columns that drenched one through and through at the initial onslaught. Fuming and cursing at the delay and the certainty that we would be unable to trail our party the next day, the Skipper and I crawled into a little hollow of rocks and divested ourselves of our heavy, soggy clothing. In a little sheltered spot in the cave we found some dry wood and this the Von placed in a little pile. The wood wasn't really dry—the humidity of the planet keeps everything moist even in "fine" weather—but at least it wasn't rain-soaked. Next my companion fumbled with his dripping clothes and presently pulled out a box of safety maches. The whole affair was as flexible as a sheet of paper from the soaking it had received, but still, Von Kressen took out one of those matches and tried to light it.

"Movie of a man making a fire," I muttered solemnly, watching little spurts of water gush from the box under the pressure of the Von's fingers while he slithered the flexible match across the side of the pulpy box.

As the futility of his efforts became painfully apparent, he groaned and fired the box out into the torrent, while his lurid ravings were adequately expressive of his disappointment. With a generous interspersing of colorful expletive, my companion informed me that the match wouldn't light.

"Gee, Solomon, but you're smart! If you hadn't told me, I'd never have known that wet matches don't light," was my grumbling rejoinder.

However, the rain was not cold, so we curled up on a few layers of rotting leaves, and with a playful contingent of bugs and worms for bed-partners, fell into fitful dozes. Rapidly, though, the luke-warm rain changed in temperature till it became uncomfortably chill, and we woke shuddering as with ague. Looking out we saw that the storm had lessened a trifle, but the cold water falling on the warm earth caused a steam that prevented one from seeing more than ten yards in front of one's nose.

A Dangerous Encounter

THE Skipper and I crawled together for mutual warmth, though there wasn't much for us to impart to each other, and wrapping our damp clothing about our shoulders, waited sleeplessly through the interminable hours till at last the rain stopped and gave way to a sullen, lowering dawn. Donning our rumpled clothes and eating a little of our small food supply, we faced the direction we had been traveling the day before, and plunged on into the forest, following the easiest routes and surmising that the Piltdown men had done the same.

But we were soon aware that we had been following false leads, for after half an hour's march we came baffled and weary to the bottom of a steep rocky escarpment, unable to go further.

Here we sank to the ground, and leaning our backs against the stone wall, dozed off—a proceeding that one of my experience should have known enough to avoid—fatigued as we were by the discomforts of the preceding night.

Suddenly my subconscious mind gave a warning of danger, and I roused myself to see, barely twelve feet away, a great sabre-tooth tiger, analogous to the former Terrestrial species *Pogonodon platycopis*. It was an enormous fellow too, measuring fully fifteen feet from the outermost point of its great head to the tip of the long tail. The coat was of tan, legs and tail dappled with round spots of a slightly deeper shade, while the top of the head and the sides of the long, lithe body were crossed by tan stripes of the same shade as the circular spots.

He was eyeing us in a peculiar manner—half curiosity, half hunger. I reached for my rifle, and that decided him (as again I should have known), for he

crouched, moaned, and leaped—a monstrous gorgon of taloned destruction—just as I pressed the trigger. With my foot I kicked the half-sleeping Skipper out of the tiger's way, and received that mighty body full upon myself.

"Exit Marx," I recall thinking, when that mighty mass of destruction hurtled upon me. If the size of the tiger was great when I saw it at my awakening, it seemed augmented a dozen times by the crushing weight of the beast as it flattened me out like a pancake upon the rubble at the base of the cliff. The tiger rose from my prostrate body and lurched dizzily about a moment or two, then rolled lifeless at my side. Pure luck had guided my bullet through the beast's right eye, and it was a carcass that had hurled itself toward the Von and me.

My companion, who had been awakened by the combined effects of the great cat's moan, the shot, and my vigorous kick, now stooped solicitously over me—keeping a wary eye on the still quivering carnivore—and assisted me to my feet.

"Hurt, Ken?" he asked, his face a trifle anxious

I shook my head while I gasped in great lungfuls of air, the tiger having relieved me of my reserve supply, and finally, coughing, choking, and with watering eyes, managed to gulp out "No."

After I had my breath fully recovered, I lay down a bit, relaxing as well as I might in order to terminate the violent trembling that had seized me as a result of the nervous tension induced by the too sudden action. When this desire had at length been accomplished to a satisfactory degree, I arose and we stood staring into the forest, figuring the best thing to do would be to move on, whither we knew not. We shouldered our rifles and I was about to step into the lead when I bethought me of the slain tiger and what a fine blanket its coat would make. Turning, I explained to the Von that we had better skin the dead beast and save the hide for nights like the one before. Accordingly, we knelt down and commenced skinning the great cat on the ground, though I would have preferred hanging it from a tree. But there was no tree near that looked as though it could stand the weight of the beast, which I reckoned would tip the scales at some six hundred pounds at the least.

The Skipper wrinkled his nose during the process, and the acrid odor, I must say, was unusually strong, accentuated as it was by the high percentage of humidity in the air. But at last the pelt was removed, and we begave ourselves to the arduous task of tanning it. To this end we cut down four *calamites*, trimmed the trunks of smaller branches, and by notching and tying them together, made a frame about twelve by nine feet. On this we stretched the pelt, fur side down, and then with our hunting knives began scraping off the fat and meat from the flesh side. By nightfall we had this fairly well done, and then we looked about for a shelter.

Von Kressen found one some distance to our right—a cave worn into the cliff by the action of the winds and the rains. We lugged the hide over to it, ate a little food, and then covered the skin with several layers of broad leaves in order to keep off the hosts of hungry insects that would avail themselves of the hide's hospitality during the night.

We slept comparatively well that night, our only annoyers being the swarms of mosquitos, ants, and flies. The next morning dawned with the promise of a "nice" day, and we were at first minded to continue after Parri and his abductors, but on second thought decided to finish the skin.

The Attack!

BEGINNING where we had left off the preceding day, we removed the tiger's brain and worked it into the hide, adding the whites of several bird's eggs the Von had found. When the skin had been made sufficiently pliable, we picked up several large rocks and with them pounded and ground down a few blocks of sandstone, making as fine a powder as we could get. Next we managed to take the lead out of a half dozen cartridges (all we dared spare), and removing the powder from the shells, mixed it with the pulverized sandstone. This we sprinkled over the pelt, worked in a little, and waited for Nature to do the rest.

By noon we were finished, and I took my rifle and sallied forth into the wilderness with the intention of bagging some small animal for food, as we wished to preserve the small supply we had brought along. For fifteen minutes I slunk through the carboniferous jungle with its mighty, fern-like plants waving their monstrous fronds fifty, a hundred, and two hundred feet into the grey, rain-filled Venusian sky. Thus far I had not even glimpsed any small form of animal life, but on one occasion I dimly saw a great triceratops crash his way through the forest. Suddenly I heard a shout from the direction of camp, followed by two shots and a chorus of yells—the kind that a savage emits when he is surprised by some terrible, awe-inspiring monstrosity Then came the Skipper's familiar bellow, "Oh Marx!"

I turned and ran toward camp, just skimming the larger, more substantial fern-trees, and crashing my way through the smaller growths. A score of times I tripped and fell, once nearly into the maw of the ugliest creation I had ever witnessed—a great, round, squat, slimy-looking *thing* with a disgusting shovel-shaped mouth that drooled fetid, slimy saliva. The creature was almost black in color, being a very dark brown, covered with warts, and in locomotion apparently *oozed* itself toward me.

Picking myself up again I ran on, bursting into the open just as the second attack began. For some minutes I had heard the savage cries of the Von's unknown opponents, and knew they were trying to bolster up their courage to the point where it would be strong enough to send them on a quick, though brief, fanatical dash toward my companion.

As I emerged upon the little clearing before our cave, I came to a sudden halt, fear and rage striving for mastery of my emotions. Dashing toward Von Kressen were a score of naked, white-skinned savages, while beyond them I saw the German lurch back against the wall of the cliff, firing his automatic pistol as fast as his finger could work the trigger, while from body and legs protruded four great spears, and from fifty other places he was streaming blood. He couldn't hold out.

of course, and he sank to the shale, firing weakly to the last.

With a bellow of wrath I jerked up my automatic rifle and began firing at the backs of the savages, my sight blurred by the tears of rage that welled up in my eyes. For a while they were getting the worst of it, my bullets mowing them down even though I did not aim carefully, until with a resounding *klunk* something hard and heavy landed on the back of my head.

A brief moment things began to swim before my drooping eyelids, then everything faded into nothingness.

CHAPTER V

The Cave Princess

WE were surrounded by a curious mob when I opened my eyes. The Skipper was still unconscious, his pain-racked body twisted into an awkward position, while over him bent a half-naked savage who was binding up my companion's wound with broad, thick leaves. On the back of my own head was smeared a salve which I later learned was composed of a crude sort of lard, resin, and the bark of a tree that somewhat resembled the sweet elder.

When the man had finished with my companion, he motioned three nearby warriors to carry the limp figure into a large cave close by—one of several dozens that perforated a low cliff behind me.

One of the men now noticed I had my eyes open, and approached me. He jerked his head, indicating me to rise, and spoke something in a low voice. I complied with his request, and, surrounded by a score of jibbering savages, was marched off to the greatest cave-entrance in the face of the cliff. I looked at the men whose prisoners the Von and I were. They closely resembled the sculptured busts I had seen on Earth, of the race designated as the Cro-Magnon. They were very tall, all the men standing at least six feet, some even going up to about six-feet-eight, and the average six-feet-four. Their heads showed the same great cranial capacity as the skulls found on Terra, and were covered for the most part with thick shocks of black hair, though there were some red and some brown-haired individuals among them. The shades of these latter colors, however, were dark, the red hair being really auburn. Their faces were rather finely chiseled, and would pass as handsome anywhere on Earth. The cheek-bones were high, the chins well-developed and square. The mouths were not too large, and the lips straight and full, though not pendulous or brutal. The noses were straight and aquiline, while under the high, handsome foreheads shone intelligent eyes of brown. There were also blue and grey eyes among them, especially among the women, who were themselves fairly tall, and with figures made perfect by the unfettered freedom in which they lived.

Garmenture and ornamentation varied according to the individual's taste, with the exception that only leaders of the tribe were permitted the use of grey-black feathers fastened around their heads by snake-skins. Some of the men wore loin cloths of small rodents' skins; others wore capes or cloaks of lion, tiger, or the enormous Venusian cave-bear. Everyone had one or more strings of dyed animals' teeth about his or her neck, and others had also anklets of bone, trimmed with vari-colored birds' down.

The weapons of the men included long knives of bone or flint, fastened in a leathern sheath at the right thigh, a club or knob-stick hung from a thong at the right hip, while down the left side hung a quiver of arrows, and a little in front of that a stone axe. Across the men's backs were slung strong bows, made of the rare hardwood that grows high up on the flanks of the great Venusian mountains. The long strong spears the men carried were also cut from this wood, which is very much like hickory.

Entering the mouth of the cave, we passed through a winding corridor illuminated at places by chunks of luminous fungus stuck into numerous little niches in the rock wall, and came presently to a great chamber lighted as the passageway. The room was roughly oval, about two hundred feet long, a hundred wide at its greatest transverse diameter, and twenty feet high. The gallery through which we had come entered the room on one side, and directly opposite the entrance was a wooden framework supporting a wooden bench, over which was spread a great bearskin.

And upon the bench sat, half-reclining, a young woman—and a very attractive young woman at that. She was garbed in the skin of a cave-tiger, wore all the smaller amulets of the lesser members of her tribe, and also wore a primitive crown of gay feathers, bound about her head with a broad, glistening black serpent-skin. A single great Aepyornis plume, a yard long, rose from the center of her becoming head-dress.

Her hair was auburn, though in the somewhat bluish light that pervaded the chamber it seemed black. Her eyes I could not see at the distance I stood from her. Her face was beautiful though—and I know a beautiful woman when I see one.

Like most of her race, she was tall compared to most present-day Terrestrial women, measuring about five feet eight inches. Her body was slender and supple, and beneath the clear white skin rolled muscles like those of a young lioness. In the shapely right hand dangled a white wand that was her sceptre, and at her right hip was suspended a stone knife. Every inch she looked a real queen, or rather, goddess, of the primitive people she ruled.

After giving me a thorough inspection she sat up and ordered me brought forward. When sufficiently close, she fingered the strange clothing that encased my body and marveled at the shiny cylinders whose rims projected from the top of my cartridge belt.

Presently she spoke to me in a clear, musical voice; but I, of course, could understand nothing. In politeness to her, however, I replied in every language and dialect with which I was familiar, though I knew my efforts were foredoomed to failure. She, in return, listened quietly to me, and when I had finished, turned and spoke a few words to an elderly courtier who stood like a graven image at the side of her primitive throne. When she had spoken he gave a low bow of acquiescence and made a brief reply.

An Accident

NOW a young warrior entered the chamber, and approaching the fair ruler, presented her two objects that glittered dully in the subdued, bluish light. She picked up one, which I saw was my six-shooter, and commenced fingering it. With a cry of warning I started toward her, only to be roughly jerked back by the three guardsmen who had charge of me. The Princess looked up in annoyance at my ejaculation, and at a sign from her one of my keepers clapped a palm over my mouth to dam the stream of protests that issued therefrom.

When she was through with the six-shooter she passed it to the elderly courtier with a short comment, and turned to the Von's automatic, while the man proceeded to examine my revolver; fingering the grip, "listening" to it, smelling it, and peering down the barrel, the girl doing likewise.

And then they did it. The two reports rang out almost as one; the girl dropped the gun as though it were red-hot, jerked her hands to her head with a little cry, twisted once, and sank back unconscious upon the wooden throne. As for the man—he still stared wide-eyed and wondering at the revolver, which was slowly turning in his hand as the grip of his fingers relaxed, then it fell to the floor while his knees sagged and his lifeless body lunged face down upon the stone floor.

This unexpected display of fireworks caused the hasty and undignified exit of a score of guardsmen who had been lolling against the walls to do the Princess' pleasure, and two of my own guards bolted with the rest, while the one remaining was very much minded to follow his fellows, but loyalty to his fair ruler would not permit.

Freed from the grip of the savages, I leaped to the quiet figure lying on the crude throne and stretched it in a more comfortable position. The bullet had grazed her temple, but—thank God—she lived. I turned to the flustered guard and cried for him to bring water, gesticulating toward the prone body on the couch. But he couldn't understand, so I dashed toward the exit of the cave, into the passage, and knocked myself dizzy against the wall at a turn which was not illuminated by the usual phosphorescent fungus torch. Picking myself up, I began to grope my way toward the daylight when the warrior in the room decided to evacuate also, and coming up behind me, bowled me over again, nearly braining me against the floor. Again I scrambled up and pursued my way to the open air, this time the warrior in front of me. Just as I emerged from the passage into the open, I found the body-guard of the Princess congregating for a return to the cave. I ran toward them and cried "Water, bring some water!" but of course, it didn't take. However, I snatched a clay pot from the ground and ran to a spring I could see bubbling from the cliff a small distance away. There I filled my vase and returned to the cavern with the savage white warriors.

Reaching the chamber, I first appropriated the two short-arms lying on the floor before the throne, tucking them inside my shirt. Then I took a handkerchief, and wetting it, dabbed it at the wound. Fortunately for the fair sufferer, it was only a flesh wound, the shell having merely grazed off a little patch of skin above the temple. Presently the village Witch Doctor and physician, the man who had patched the wounds of Von Kressen, came in and applied some of his salve to the girl's hurt.

It was while he and I were tenderly working over her that the Princess opened her eyes. With a little grimace she touched the sore spot and brought away her fingers daubed with blood and salve. A minute passed before she comprehended the situation, and then she looked quickly up at the Witch Doctor and me. I gave her a cheerful smile of encouragement, and was rewarded by seeing her lips curve in a brave, quiet little smile in response. In secret I complimented myself on having a way with women, and also reflected what a lovable captor this little savage was, and what a "lucky dog" I was to be her prisoner.

But when it comes to women, I'm good—really I am.

If I cared to, I could write a whole blooming book about my various love affairs—most of them one-sided, by the way—ranging all the way up from the worshipful devotion of Mawaza, the shy black cannibal maid of Central Africa, with copper earrings and a wooden platter eight inches in diameter in her lower lip; to the frivolous and somewhat shallow affections of a popular French actress and dancer in Paris, who gambled away her earnings on the green, or checkered, tables of Monte Carlo and attempted suicide every six months to bring her before the public eye again, lest her popularity go on the wane. In point of looks, I think Mlle —— had a slight advantage over Mawaza, but in point of faithfulness I believe I would have preferred the ebon maid from the backwaters of the Congo.

Several minutes of silence followed the Princess' revival, then she spoke to a few warriors, one of whom touched my sleeve and beckoned me to accompany him and his companions. His attitude was rather deferential, and he was very decent to me as they led me to another cave where they left me, the leader making apologetic gestures to me as he left one of the men to guard the entrance of my cavern.

With a smile of satisfaction I turned to the mat of leaves in a corner and lay down to await the fall of night. I was satisfied because I saw by the attitude of my guards that their ruler had taken a fancy to me and instructed them to treat me well; this supposition being shortly verified by the appearance of a young woman bearing a pot of food and a clay cup of water. When I had finished my repast the copper-tinged night had enveloped the jungle and a slow warm rain commenced. My guard drew into the passage of my apartment and squatted against a wall, a bear-robe wrapped about him. I tucked the two guns under my grass pillow, and drawing a stag-hide over me, soon fell asleep.

The next morning was the finest I had ever seen on Venus. The usual dark clouds floating two thousand feet above the land were gone, and in their place floated lighter clouds some four thousand feet above the ground. The day was much lighter than any I had seen thus far, and on several occasions there were dim shafts of radiance seeping through the clouds above.

That the weather was becoming nicer I attributed to the fact that our position on the planet's surface was coming closest to the sun.

An Imperial Call

TWENTY or thirty minutes after my awakening, two warriors approached the guard of my cave, and the three had a short palaver, after which they came in to me and by polite gestures indicated that they wished me to accompany them. I rose from my seat on the grass bed and was conducted to the throne cavern of the day before, and once more presented to the Princess.

Followed thirty minutes of meaningless jabber on the parts of all concerned, the Princess carrying on quite a conversation with me by means of two interpreters, who acted like the real goods, but imparted information to no one; while I extolled the good points of the fair ruler, made remarks about the wonderful weather, and told jokes in any tongue I knew, just as the whim seized me. When the half-hour had passed, the entertaining little party broke up and I was returned to my apartment, the two "interpreters" going with me. Their object was soon apparent, for as soon as we had been seated in the lighted entrance of the cavern, one of them pointed to each of us and repeated the worn *non*. I correctly surmised he meant the equivalent of the English *man*. Then taking several fruits which someone had brought during my absence, he named each one, ending with the banana as *gavo*. Most nouns were of one or two syllables, as was to be expected of a comparatively uncivilized race. It is true that the American Indians, and many of the black tribes of Africa have multi-syllabled words, but most savage tribes of my acquaintance had monosyllabic languages. My past experience in learning unfamiliar languages and dialects stood me in good stead now, and by the time for the midday meal I had made very satisfactory progress in nouns, pronouns, and a few verbs and adjectives. Conjunctions, prepositions, and adverbs were to come later.

After the meal, at which my instructors were my guests, they conducted me about the cave-village, showing me the various homes of the people, and introducing me to the several befeathered chieftains we met. On every hand the highest courtesy and consideration was extended to me, and a thousand times over I thanked Fate for my "way" with women. I was confident that all this sudden friendliness on the part of my captors was the outcropping of my more or less purely flirtatious smile to the primitive Princess the day before. Presently my guides took me to the edge of the plateau on which the cave-village was situated, and there I saw a sheer drop of some two hundred feet to a steep slope falling for fully a mile to the green marsh-jungle below. I was surprised to find high ground on Venus, for from the conditions on the lowlands, I had assumed that no high hills of hard rock existed on the planet. However, as Venus is still in a very plastic age, I surmised that tremendous earthquakes had lifted the hardening crust of the planet up this far. And there really was no very hard rock on the mountain—just the usual lime and sandstone of the lower lands. Later I was to find out that there are mountains on Venus, young as the planet is, that dwarf our highest Terrestrial hills into pitiful insignificance.

Our survey of the village completed, we returned to my "home," where I indicated by signs and as much of my new language as I knew that I would like to see my companion "visitor"—Von Kressen. So one of them hunted up the Witch Doctor, who conducted us to the cave where lay his patient. The Von was asleep when we came in, but his face indicated a rise in the fever which had set in, and a coming delirium. I was thankful that the village was high above sea level. On the lowlands the fever would be fatal, I was certain. Two girls, who I subsequently learned were the physician's daughters, were applying skins soaked in cold water to the forehead and face of the patient.

My two teachers left me here, and I returned alone and unguarded to my cave, where my guard actually greeted me with a smile. I sat with him the rest of the afternoon, and when I made it known to him that I would like him to teach me a little more of his tongue, he was delighted beyond measure. Thus the afternoon passed quickly and entertainingly, and as I rolled beneath my stag-hide that night it was with the knowledge that these handsome savages were no longer enemies, but friends.

The next day my instructors called again, and again the next, and by the time a week was up I had made wonderful progress in the tongue of my friendly captors.

It was early on the morning of the eighth day that they came with two other warriors, and entering, one of them addressed me.

"The Princess Deena wishes your immediate presence in the throne-room," he said, "to speak with you over a very important matter. Come!"

CHAPTER VI

A Strange Proposal

"I HAVE asked you to appear before me in order that I might discuss with you an important proposal that I am sure will prove satisfactory to all concerned," began Princess Deena to me, as my party and I stood before her throne.

"It is a great pleasure to me to have the Princess Deena deign to notice me at all," I replied, truthfully, "and I shall most heartily do all in my power toward the furtherance of her desires." This with the mental reservation, "Provided they do not interfere with the comfort and well-being of my companion and me."

Deena nodded.

"What is your name?" she asked.

"Kenneth Marx; Archaeologist of the National Institute at Washington, U. S. A."

"How?" inquired the Princess, looking puzzled at my lengthy reply.

I repeated my statement, and when she asked what that meant, I explained to her as well as I was able. After that she wanted to know where my country was, to which I replied that it was very far away—a great, great distance—and that had to satisfy her.

"The reason I have called you is this," she spoke up

then, "You and the white-haired one are mighty fighters. Alone you two killed twelve of my warriors with the strange weapons that slay at a long distance with a great noise. What I want to do is make you members of my tribe, and have you teach my warriors how to use the things that make the noise and throw fire. You will receive a large cave, will have all the chances of chieftainship that our men have, and each of you can choose as many wives as you can support from the many untaken girls in the tribe of Karna. I am sure that many of them would be perfectly willing to go through our marriage rites with you. What say you?"

I scratched my head. In some ways the proposal was alluring. It meant that joining the tribe would render us immune to further danger through our captors, and we could do as we pleased in the neighboring country. We were by no means bound to marry any of their women—though take it from me, there were none of them hard to look at. Further, we could more easily conduct our scientific research in ways of animal and botanical life forms. And lastly, by teaching the Cro-Magnons the use of firearms we would be giving mankind on Venus a tremendous advance toward the mastery of the planet.

"Well?" prompted Deena, when a minute of deep silence had passed.

"For my own part, I would greatly enjoy taking advantage of your generous proposal," I replied, "But would it not be well to ask my companion also?"

Deena nodded. "I intend to ask him, when he is fully recovered. Just now he is too ill to be disturbed, but in a few days I will see both of you again. In the meantime you will be permitted full freedom of action within our community, and have ample time to reflect on the proposition I have made you."

With that she rose and moved behind the throne to a bearskin hanging on the wall, behind which she disappeared, thereby terminating the interview. The warriors congregated within the chamber now dispersed, save the few who were on constant guard beside the crude throne of stately Deena.

"Kenneth Marx, Aurignacian warrior," I ruminated, reflecting as the Cave Princess had suggested, on the proposal made to me. I was in something of a quandary. If I accepted, my future on Venus was more assured; but then, I might never again have an opportunity to return to my own world. If I refused, it was quite likely that I might be requested to stage a wrestling match with the very substantial-looking rock set up in the center of the village, while an appreciative company of painted savages expressed their enthusiasm of my exhibition by accompanying it with a Stone Age version of the Undertakers' Tango. And doubtless some aspiring young cook would, with the assistance of my bare feet, render an artistic performance of his culinary ability.

The more I thought of it, the more rosy seemed the benevolent proposition handed me by the solicitous Deena. So I decided to accept her generous offering, but elected to wait with the announcement until Von Kressen had recovered from his illness; and with this in mind I turned from the outer entrance of the throne room toward my own cavern. On the way I paused at the Witch Doctor's cave and looked in to see the Von, but he was still asleep.

Coming to my own cave, I sat at the entrance and looked out at the white, pillowy clouds that floated above, and saw that the sun was struggling to break through them. And at last—the clouds opened a little, and a shaft of light, dazzling by comparison to the murky days I had thus far seen, struck my eyes. A moment later I saw the sun—with a diameter apparently one and a third times as great as when seen from the Earth. Its color was a deep, reddish orange, for the dense water-vapor of the Venusian atmosphere absorbs all the shorter rays, and only the longer light-waves break through. On thin-aired Mercury the sun is no doubt white with a bluish tinge and in diameter seems two and a half times as great as when it is seen from the Earth.

Kidnapped!

WITH the sight of the sun came the desire to be doing something, and my mind turned to Raoul Parri, and the search that my convalescing companion and I had instituted for him. I wondered if Parri still lived. It was—let me see—sixteen days since we had landed on Venus, and eleven since Parri had disappeared. There was little likelihood that our French colleague was still living, for if the savage warriors who had captured him had not already killed him, then he must have died from the merciless jungle fever that had certainly set in through his wounds. The idea of his death fairly made me boil, and then and there I vowed to avenge him. And the best thing to do to accomplish that would be to obtain the assistance of the Cro-Magnon men in whose village I was. There was no time for delay, and I would have to immediately inform Deena of my decision regarding her offer. So I arose and moved to her cave. As I entered the throne-chamber, one of the half dozen guards accosted me.

"What do you wish, stranger?"

"I have decided to accept the offering of Princess Deena, and come to notify her of my acceptance."

The guard vanished behind the bearskin hanging on the wall, to emerge again in a few minutes.

"The Princess is not in her chambers. She has gone bird-hunting, her handmaid informs me."

I was a trifle disappointed, but I nodded to the man and asked him to tell Deena of my decision when she returned, then moved out again into the sunlight.

Here I began a slow amble about the village, occasionally speaking with some of the savage warriors, or again playing with the dozens of naked imps who stared at me as though awe-stricken and then fell to shrieking and laughing as they raced like scared rabbits over the grounds of the village.

Presently I reached a place where there were no dwellings and no people, and thus comparatively quiet. I was on the point of turning back to the more settled part of the cave-town when there came faintly to my ears the muffled scream of a woman.

I stopped. Princess Deena—? For a moment I could not place the direction from which the sound came, when I heard a sharp exclamation of pain, this time in the low, gruff tones of a man. The sound came

from my right, somewhere in the forest. I turned toward it and ran as I had to run to Von Kressen's aid the day we were captured. A score of times I tripped and fell, to rise and race on again. Ahead of me I could hear nothing more, and it never occurred to me to shout in order to notify the woman who had screamed that I was coming to her assistance.

Suddenly I burst out upon a tiny natural clearing. I could not check myself quickly enough, and so tripped and sprawled over the prone body of a warrior who lay on his back in the loam. Rising I knelt beside him and examined him. I recalled seeing him as one of Deena's trusted couriers; a chief very high in her esteem. Sticking from his chest was a wooden war-arrow of the ytpe used by the Venusian Cro-Magnons, shot with such force that half a foot of it emerged from his back, where it had broken as his dead body fell upon it.

In the soft loam I could see his footprints from where they emerged from the forest, and beside them were smaller ones, a woman's, encased in leathern sandals. Where the dead warrior lay the woman's footprints were much deeper at the ball of the foot and the loam was shoved toward the toes, indicating that the maker of the tracks had come to a sudden and unintended halt.

Apparently Deena's courtier had been killed from ambush, the deadly missile coming from the opposite side of the clearing than that from which he had emerged. At his feet the soil was torn and disturbed, and there were many interminglings of the woman's sandaled feet with the great, naked feet of an unknown male assailant, no doubt the same who had slain the man.

And lastly, fluttering on the ground in the trampled area were several of the gaudy feathers torn from Deena's head-dress. Only Deena wore the brilliant feathers—the other women of the clan had none, and the feather-bonnets of the men were composed of the grey-black plumage of the birds of prey. One of these feathers also lay on the soil.

Searching for additional clues, I presently found the footprints of the attacker leave the clearing, and that he bore a struggling, fighting burden was evidenced by the depth and irregularity of his footprints. These I followed fairly easily, since burdened as the man—there seemed to be only one—was with the not inconsiderable weight of Deena, he could do little toward covering up his trail.

Care had to be taken that I might not lose the track, and this retarded my progress to a slight extent, but still I covered the ground at about twice the pace of Deena's abductor. Now I assume he had some twenty minutes start of me, and it took me about ten minutes more to overtake him; but at that time it seemed an eternity ere I at length burst out upon a fairly large clearing, into the opposite edge of which he had just disappeared. Somehow I had a terrible fear that harm might befall Deena, but why I considered the whole affair so very personal to me, I could not have told you—then.

A Desperate Struggle

THE brief glimpse I had obtained of the big warrior with his still struggling burden had served to toss all discretion to the winds, and I leaped after him, never thinking of the possibility of his lying in wait for me in the verdure at the edge of the clearing, ready to despatch me with an arrow as soon as I came close enough to insure success at the first shot.

But the fellow evidently expected no pursuit, and thus it was that I had shot into the forest after him and was already leaping for his back ere he could turn at the sound of my footsteps.

My hurtling body struck his right shoulder and sent him, his captive, and myself into a tangled mass of writhing bodies and kicking legs from which Deena, as the girl had indeed turned out to be, was the first to extract herself. Now she stood a little to one side while the warrior and I staged an all's-fair rough-and-tumble between the boles of the trees, against which we frequently cracked our heads. My opponent had, to my way of thinking, the strength of an elephant, and with his two powerful arms about me was slowly but surely crushing my ribs. After a desperate effort I managed to grasp one of his wrists and twisted it until his hand-clasp on my back broke, then I struggled free and scrambled to my feet.

He was up right after me, and for the first time during the struggle I had a clear view of his face. I recognized him at once as one of Deena's chieftains, whom I had seen on the occasions that I was presented at the throne-room. He was not bad-looking, as far as physical appearances go, but there was a glitter of lust and avarice in his eyes that aroused a deep distrust of him in me from the time I first saw him.

Now he glared at me and with a deep, sullen growl launched himself upon me. I braced myself, feinted at his abdomen with my left fist, and as his arms came down I corked him on the jaw with my right. A grunt of surprise was elicited by the blow and he staggered backward, his rush checked, but he did not fall.

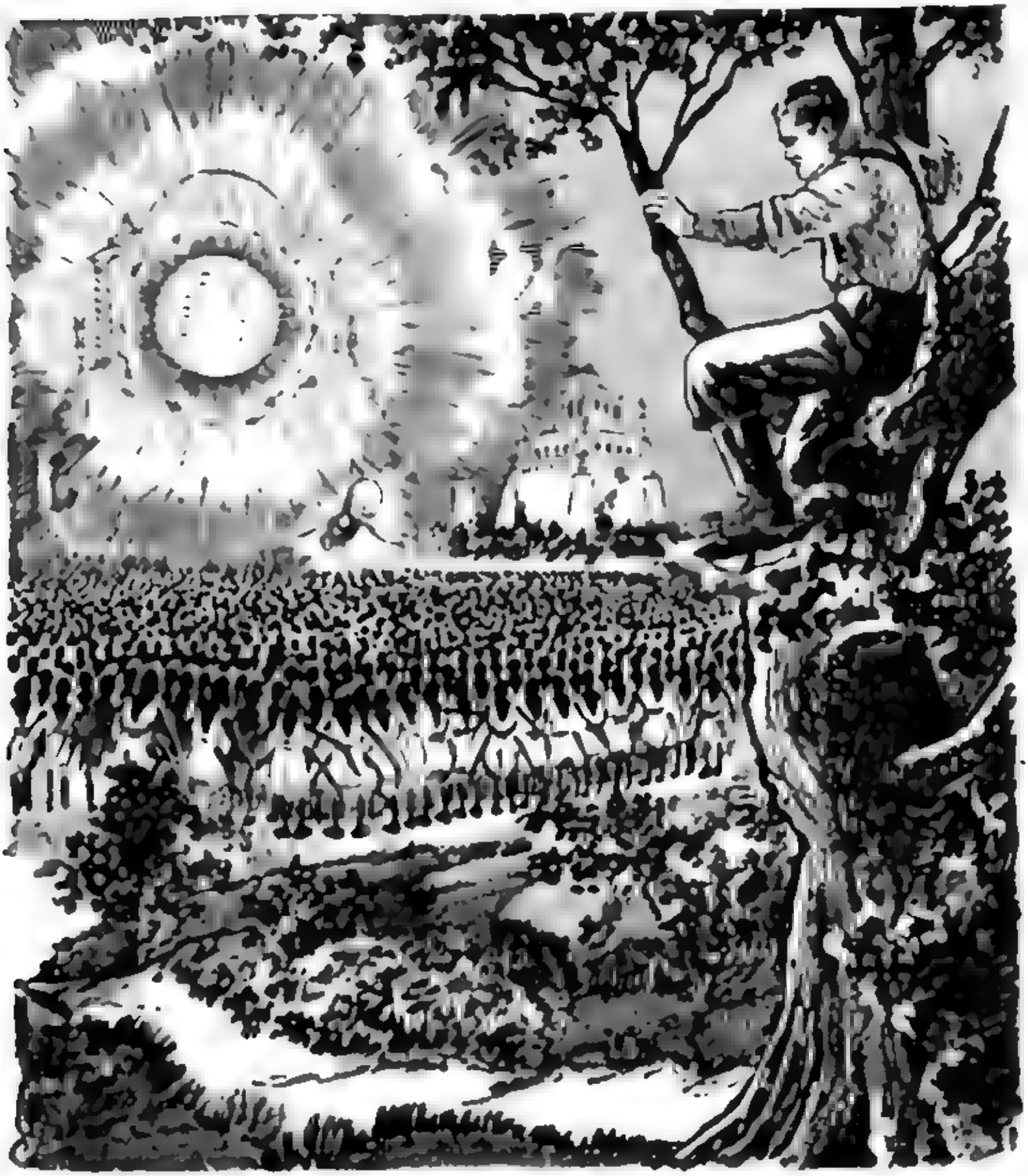
But the blow had befuddled him, and he was open to all the hard swings that I planted at his face and body. However, he was the toughest egg I ever tried to crack, for though he swayed and rocked and staggered drunkenly under the force of my hits, I could not sink him. And one time he gave a wild swing with his right fist—and for some unknown reason I had to poke my face in its path. He nearly knocked me loose from my teeth that time. When his pile-driver connected with my jaw a singing and humming sound that was not altogether unfamiliar to me shot through my throb-bind head, and I executed a backward somersault which landed me against the bole of a tree, upon which I proceeded to bump my skull. The second crack, however, tended to disperse the mist that had come before my eyes as a result of the first, and thus I was very much awake as I sprang to my feet, swearing.

The other was awaiting me, grim and silent, when a new element entered the combat. The fellow cocked his head to one side suddenly, and as I rushed at him he turned and shot swiftly into the forest.

(*Continued on page 367*)

IN 20,000 A. D.

By NATHAN SCHACHNER
and ARTHUR L. ZAGAT



(Illustration by Paul)

I could see the crowd and Karet floating above them. They looked like ghosts—red ghosts stretching away as far as I could see!

IN 20,000 A.D.!

By the Authors of "The Tower of Evil"

NOT all superstitions are devoid of reality. Sometimes old wives' tales come true. And then there is a grand gathering of the long-bearded clans, much arguing pro and con, and finally, perhaps, a triumphant bringing of the old wives' tale under the aegis of science.

Take the case of the "Vanishing Wood" at Blaymont. Just outside that sleepy Long Island town a little grove of scrub pine and tangled underbrush had been shunned for centuries. Peculiarly enough, the taboo seemed to affect not only the human denizens of the countryside, but even the animals. No straying cattle had ever been known to seek the cool recesses of the little copse. No wandering dog of the neighborhood ever investigated the tempting shadows of the little wood. No birds nested in its trees.

When an infrequent visitor to Blaymont, upon being solemnly warned against entering the "Vanishing Wood," made inquiry, he could elicit nothing definite. But when the natives were together, with no outsider present, old tales would be revived in shuddering whispers. Once long ago, a wild calf of old man Jones had dashed into those woods. He had never come out! And sometimes a mother would frighten her erring youngster with the story of little Abby Green. How the two-year old had wandered away one afternoon. How search had been made for her, and her footprints traced to the mysterious wood. How nothing had ever again been seen of her.

Oh, there were plenty of shuddersome incidents told with bated breath about the "Vanishing Wood" of Blaymont! But never such a tale as Tom Jenkins told when at last he unsealed his lips.

Tom was the last man one would pick for a hero of wild adventure. A great, hulking farmer lad, his schooling had barely fulfilled the none too exigent requirements of the law. His most errant thoughts, it seemed, never wandered far from the care of his widowed mother's little farm. His wildest evenings were those spent in drawling conversation round the pot-bellied stove in the general store.

ARTHUR L. ZAGAT

NAT SCHACHNER

It was one of those nights at the village social club that began Tom's strange adventure. The talk had turned to the "Vanishing Wood." First one, then another had spun his narrative; the tale handed down from some grandfather. As the mounting crescendo of horror had drawn the circle of chairs closer and closer to the glowing stove, Tom had become more and more excited. Some unsuspected streak of skepticism in his dull soul was being irritated by the superstitious talk. At last he could contain himself no longer.

"I don't believe it!" he had suddenly burst out, to the startled surprise of the rustic circle. "I don't believe it! It's all a pack o' lies. For two cents I'll go into that wood any day."

The others looked at him in amazement. This was almost sacrilege. "What's the matter with you, Tom?" the postmaster had questioned. "Been sampling some of Si Perkins' hard cider?"

"No, I'm just as sober as you. And I say again, I don't believe that there's anything queer about that wood. None of you have ever seen anybody disappear there. All these things you've been telling about are supposed to have happened long ago. That's just a bunch of trees, and I'm a'going to prove it. No use going out there now. But tomorrow's Saturday, and I'll be done with my ploughing about noon. After dinner I'm going in there, and I'll come out, too. I dare any of you to come with me!"

There had been long and arduous effort to dissuade Tom from his rash project. But to no avail. He was going into the wood, and they'd have to tie him up to stop him!

And so, the afternoon of October 10, 1931 had seen a little procession wending its way up the road to the dread precincts. First came Tom, then the half dozen other nightly visitors to the forum at the general store. Then a fringe of tow-headed, barefooted youngsters whose unerring instinct had warned them something exciting was afoot. The postmaster and the village constable were still busily engaged in persuading the

THE mere mention of words cannot convey truly the thrill that the editors experienced when they read this marvelous time-traveling story. Imagine yourself suddenly rushed through time and finding yourself thrown into the year 20,000 A.D.! Into a world of which we know nothing and one that even your most fantastic dreams cannot picture adequately!

We know that in 18,000 years the world will have changed so enormously (that is the human race and its civilization will have changed) that it will be practically unrecognizable. A man of to-day, even possessed of the broadest education and vision would find himself in a terrible plight if thrown into that world. Imagine then the predicament in this startling story of a country boy who is forced to play a part in the stirring events of a great civilization!

young farmer to give up his daring venture. That individual was obdurate however. Not that he was altogether easy about the safety of his intended deed. Perhaps there *was* some truth in the old tales. But to back out now would make him the laughing stock of the village.

The procession halted at last in a grassy meadow. Ten feet away was the little grove whose menace has so long cast its ominous shadow over these fair fields. A lone figure went on ahead. Tom's knees were shaking, the palpitation of his heart seemed to him to be visibly rocking his massive form. But he managed to turn at the edge of the wood, waved a cheery hand, and called back "See you in ten minutes." Then he plunged into the shadows.

The grey-bearded justice of the peace held his turnip watch so that all might see it. Five minutes, seven, dragged slowly by. Ten minutes; Tom should have been out. But no Tom appeared. With white faces the little group gazed anxiously at the dark trees. A quarter of an hour, thirty minutes passed slowly by. It seemed certain now that the lad had been swallowed up by the mystery of the wood.

All afternoon the little group kept its vigil, hopelessly. They called and called, but no answering hail came from out those dread precincts. There was none so brave as to venture into that copse in attempted rescue. At last, the fall of night sealed the death of hope. Sadly the villagers returned—each reproaching himself that Tom had not been restrained by force.

* * * *

"Look at this," I said to my chum, pushing a newspaper into his face.

"What is it?" He looked at me indifferently, "another one of your newspaper yarns." Sid was tired, I guess, of having me show him my scoops. Sid was a scientist and took a superior attitude towards newspapers and reporters.

"Read it!" I urged him. And when he took the paper, the Blaymont *Courier*, and read a marked notice I read with him over his shoulder.

TOM JENKINS RETURNS—REFUSES TO TALK

Thomas Jenkins, whose mysterious disappearance in the "Vanishing Wood" six months ago will be well remembered by our readers, reappeared just as mysteriously yesterday. He was found wandering aimlessly, apparently dazed, in Brown's Meadow east of the wood.

Tom was brought to his mother's home, where he quickly recovered. The entire neighborhood gathered to welcome him, and hear the story of his adventure, but they were sadly disappointed. Jenkins refused to talk.

When the editor interviewed the returned wanderer, he could elicit nothing from him. After much effort, however, Jenkins did make this statement:

"If I told you where I've been and what I've seen I'd land in the lunatic asylum. So I'm not saying a word." And then he shut up like a clam.

"Well?" Sid handed the paper back to me. "What of it?"

"Doing anything tonight? Do you want to exercise yourself on helping me to pump young Mr. Jenkins?"

Sid's face lighted up. "You mean that your paper thinks there's something in this story."

I grinned. "No, of course not. But it'll make a good yarn."

Sid was thoughtful for a few moments. Finally he looked at me queerly. "Let's go," he said suddenly. "I have a hunch."

But Sid was wrong, he had no possible conception of the amazing truth of what we were to hear.

* * * *

We had no trouble in finding the widow Jenkins' house—everyone knew its location. A little knot of curious yokels lingered at the gate. They made way for us, then closed in again. Our knock was answered by a little old lady in black. She was bowed by years of toil and tribulation, her face seamed with care. But there was a kindly twinkle in her eye which encouraged our persistence in the face of her discouraging reply to our inquiry.

"No, you can't talk to Tom. He says he won't see nobody and won't talk to nobody. 'Taint money he wants, neither. Just wants to be let alone."

"But, Mrs. Jenkins, we've come all the way from New York to see him. Surely you won't send us away without a word."

"Well, I'll ask him."

A long wait. Apparently the old lady was engaged in persuading her son to see us. At last she returned.

"Alright. He says, being as you've come such a long way he'll see you. But it won't be no use!"

We entered the dark and musty "parlor" of the little house. We were indeed honored guests! A strapping farmer lad stood spraddled there to greet us. We introduced ourselves. A great paw engulfed our hands in turn. We sat down. I was very careful, I doubted whether my two hundred pounds might not crack through the "sofa" I had chosen as the most substantial piece of furniture in the room.

I left the talking to Sid. We had agreed that as a scientist he might succeed where a reporter would fail.

There's no use in detailing the long argument. We were early convinced that Jenkins had passed through a most interesting experience. The level look of those blue eyes assured us of his honesty. But he would not talk. He was convinced that no one would believe his tale—that the narrative would be set down as the ravings of a madman—that he would be immediately incarcerated.

At last we reached a compromise. We would report the adventures through which he had passed, but would carefully conceal his identity. This we were never to reveal. On this condition he would tell us the story.

That is why you will find no Blaymont on the most detailed map of Long Island. And Thomas Jenkins' name is something entirely different. But the rest of the strange things hereinafter set forth are just as they were told to us.

We are utterly convinced that Jenkins did see and hear the things he told about. In the first place, he has nothing to gain by lying. He has absolutely refused to touch a cent of what we shall earn with this narrative. No other motive can be ascribed to him. But the clinch-

ing proof of the authenticity of the narrative is this. Tom Jenkins *could not* possibly imagine ninety-nine per cent of what he told us. He has neither the education nor the experience. It is impossible to impute the requisite scientific knowledge to Jenkins.

Far into the night Tom Jenkins talked, and we wrote. Finally his tired voice ceased—our cramped fingers relaxed. The tale was down in black and white, the narrative of the strangest experience man ever had.

Here it is—in Jenkins' own words.

CHAPTER II

Thomas Jenkins' Narrative

WELL, (said Tom Jenkins, settling himself more comfortably in his chair, the while puffing contemplatively at his pipe) it was this way

I couldn't for the life of me see this Vanishing Wood business at all. I had some school learning when I was a kid, and I never put any truck in superstitions. So when every one was afraid to go near the spot, it was up to me to be the brave lad.

Up I marched to the very edge of the wood, the whole town afollowing me, every man jack of 'em opining what a big fool I turned out to be. And for all my bold front and swaggering walk, that was just what I was beginning to feel. "You blooming idiot," said I to myself. "Now you've gone and done it. Supposin' there's something to it, and it gets you. Then where'll you be with your boasting."

For a while I was minded to turn back, but I took one look at that bunch following and I says to myself. "Tom my lad, you'll never hear the end of it, if you quit now—they'll josh you all your born days." So I put a bold face on't, turns to the neighbors, waves my hand as cheerful as brass, and marches into the clump of trees.

Well sirs, I took a couple steps and nothing happens. My nerve sorta returned at that, and I began to feel chipper and scornful like. "Ho, ho, just as I thought, it's all blarney," I said: "Nothing's gonta happen—this old wood's just like any other."

Meanwhile I'm walking further in. Another coupla steps and I come to a little clearing. It struck me as peculiar then. For on the opposite side the trees were acting funny. Instead of standing up tall and straight as honest self-respecting trees ought, I'll be hanged if these trees didn't all lean way over in a sort of a double curve. There was a path in between, and on each side the trees leaned away from it, like as though it was a funnel.

It was a bit queer all right, and I sure felt like turning back. But my pride was up, and nothing had happened yet, so in I went.

(Tom Jenkins paused. His pipe was out. Deliberately he knocked the ashes out, very slowly he filled it to the brim with fragrant leaf, tamped it down carefully several times, lit up, and puffed leisurely until the blue smoke curled lazily overhead. And as for us, we were balancing on the edges of our chairs, wild with impatience for him to continue. In spite of my annoyance, I recognized a fellow craftsman. This farmer boy has a flair for suspense, I thought admiringly.

Now that his pipe was drawing to his entire satisfaction, Tom continued.)

"As I put one foot on the path, I felt a tug on my leg. Just a little one. As the other one came in and down, I knew something had happened. I tried to jump back, but it was too late.

I felt myself doubling up in the queerest way—my whole body was contorting like an acrobat's, and strangest of all, just the same way as the trees. I was pushed by something down the path. The trees were gettin' more and more twisted, and I was twisting with 'em till I felt all tied up in knots. The path opened a bit, and there—at the end of it—*was nothing, absolutely nothing!*"

(Gone was Tom's nonchalance now. He was leaning forward, tense with earnestness, with desperate anxiety for us to believe him.)

"Gentlemen," he averred solemnly, "as God is my witness, the trees, the land, the grass, the ground—everything had disappeared. There was no sun, no air even, nothing but nothingness. And—this nothingness seemed curved, distorted, just like the trees, just like myself. Don't ask me to explain it, or how I saw it—I can't. Just take my word for it—*I knew it.*"

(A great light dawned on me. I knew enough of science to guess at the answer. I looked at Sid—it had struck him too, and he nodded back at me excitedly. Jenkins continued.)

I was pushed right into that emptiness. Instantly everything went dazzling white; showers of sparks danced and climbed all about me. I was falling and falling. Not straight down, mind you, but bending and twisting all the time, just like I was in the ocean and the waves was carryin' me up and down, up and down.

It was the queerest feeling. Nothing to be seen but that blinding light, and my insides turning inside out. How long it kept up, I don't know. It seemed though as though I was goin' on forever, fallin' and twistin'!"

(Tom paused and relit his pipe. "How would you like to feel like a blooming contortionist, with your ears where your toes ought to be?" he demanded.

Meekly we replied, that we wouldn't like the idea at all. Satisfied with that, he went on.)

Just as I was thinkin' to myself "Tom old boy, you're a goner. You're dead and gone. Had you been a good lad back there, maybe you'da landed in Heaven; now you're in the other place"—just as I was thinkin' that, I came down with a bump that knocked me silly.

Seeing Things

WHEN I come to, there I was lying flat on my back right in the middle of the clearing, close by the entrance to the path. There were the same queer trees leaning the same queer way. My head hurt somethin' awful, but it all cleared soon, and I scrambled to my feet.

I didn't know whether to laugh or cry, I was that flabbergasted. I sure was tickled to find myself alive again, and back where I started. But at the same time I was a mite disappointed. All that fallin' and twistin' and I hadn't gotten anywhere. "Musta fallen over a root and hit my head a clout," I thinks to myself, "and I dreamt it all while dizzy"

I had enough, so I turned to go out and tell the folks about it. I reach the edge o' the woods all right, but there I stop. "What's this," I says, rubbing my eyes, "must be I'm dreaming yet."

For there, where old man Brown's meadow oughta be, wi' the little brook running through it, an' the cows feeding on the grass, an' all the people watchin' for me,—was nothin' o' the sort. They was all gone!

Instead, I'm looking at such a sight as I'd never seen in all my born days. Nor anybody else, I'll be bound. 'Twas like something out of a fairy tale. You know, the kind you read when you was kids.

In front of me was a great big park, stretching along for miles. The grass was bright and green, just like a lawn. There were flowers and flowers—I never seen so many all together in one place. And such flowers—great big ones a foot wide—yellow and red and purple. And the whole air was perfumed wi' the scent of 'em, like honeysuckle and roses. There were paths all through the place, and lots of fountains that threw colored water into the air, and statues—queer statues. They didn't look like anything I ever seen before. And I've been to the Museum of Art down in New York once, too.

"Tom, my boy," says I to myself—you know I've a habit of talking out loud when I'm excited, sort o' does my thinkin' for me, "that clout on the head, you got, must ha' been a whopper, you're still seein' things.*

Just then I look up into the air and I get another shock. The sky is full of all sorts of airships an' aeryplanes. But nothin' like the kind we get flying over here every day from Mineola. There were some like great big ships, musta been a thousand foot long, made of a shiny white metal, and going at a terrific clip. Others were smaller, and some seemed like little specks—darned if they didn't look like people just flyin' about wi 'nothin' under them.

As I'm lookin' at them, sorta dazed like, I see one great big ship leave the ground about a mile off, and shoot straight up into the air. No circlin 'or spiralling, or tryin' to get a start, just vertical. And it keeps goin' up at a great clip, gets smaller and smaller, and disappears in the sky. Looked like it was headed for the moon."

(He looked at us defiantly, and said. "And by Jingo, would you believe it, I found out afterwards that was just where it was goin',—*to the moon.*"

Evidently he feared our disbelief, so we hastened to nod our heads vigorously. A sigh of relief burst from the honest lad, and he continued more confidently)

I got a crick in my neck watching it, an' I looked back to earth again. Then I gets a real shock. Right in front o' me, not a hundred yards off, stands a giant, twelve feet high if he's an inch, an' staring at me as if his life depended on it. God, what a sight he was to scare one out of his wits. He had four hands, two where they usually are, and two more extending straight out sideways from his body from the hips, one on each side. And where his ears shoulda been, were large flaps, shaped just like clam shells. There was somethin' funny about his eyes too, but I couldn't make it out very clearly, what wi' the distance and the nervous state I was in. He wasn't no white man either, he was black. Not black like our colored folks, but jet black, like a hole in the ground on a dark night. He had on a close-fitting yellow jacket that left his arms free, and wide baggy yellow breeches comin' to his knees. His legs were bare.

Well sirs, you kin just imagine how I felt. I started to say my prayers—I was so sure he was goin' to eat me up—but I got stuck in the middle (I haven't said 'em much since I was a shaver), and I had to start all over again.

So I closes my eyes, counts ten, and opens 'em. Darned if the giant hasn't turned tail and is running away as fast as he could, boundin' way up into the air on each jump.

A Strange Encounter

I WAS so relieved I cried wi' joy. And make believe I wasn't a bit proud o' myself, chasin' that big feller away like that.

But while I'm patting myself on the back, and wonderin' what to do next, what should I see but this same Jack-and-the-Beanstalk feller hot footing it back straight for me. And right in back of him there's somethin' floatin' in the air, keeping step with him. Looked like a canoe, and I could just see a head like a balloon sticking up.

This time I got real scared, and started to run back into the wood. But I remembered what was in there, and I didn't dare. So I waited ta see what 'ud happen.

They came to a stop about ten yards away from me, the canoe standing still in the air, about five feet off the ground. The big fellow was jabbering away in great excitement to something in the boat, and pointing at me with one of his four arms.

The boat drops slowly to the ground, and out steps the queerest thing you ever seen. Even in my worst dreams I could never imagine such a creature. I couldn't make out whether it was human, or an animal out of a zoo.

It was 'bout five feet tall, and all I could see at first was a great big round balloon head, bulging way out at the top. It was smooth and leathery; there was no hair on it. Its ears were flapped like the giant's. The eyes on it were starey, and as it started to look at me, blessed if another pair of eyes didn't pop out of a pouch where the eyebrows ought to be, and drop on a framework directly in front of the first pair, like a pair of blooming goggles, and all four eyes were examining me. Enough to give one the creeps.

The head rested on a short neck, and that on a body that was round and smooth and straight like the pillars that hold up a bank building, only much shorter, o' course. There was no hips or curves in the body and the legs were also short and dumpy.

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* Jenkins had evidently fallen into a warp in space. The Vanishing Wood was a pucker—a fault, we might say, borrowing a geologic term—in the curvature of space.

Through this warp he had been thrown clear out of our three dimensions into a fourth dimension. There he slid *in time* over the other side of the ridge or pucker, into the same spot in the three-dimensional world, but into a different era in time. Notice that he had not traveled an inch in space; all his journeying had been purely in time.

The chap with the balloon head was through examining me, and evidently satisfied with what he saw. His mouth widened, and he spoke. You coulda knocked me over with a feather, I was that surprised. He spoke English—leastwise it sounded a good deal like it—as though he was a foreigner. It was awfully hard to understand him—the words sounded queer, but I could make 'em out after a while. There were lots of words he used I couldn't make head or tail out of, but generally I got the sense. Afterwards, when I lived with 'em, I had no trouble about it. His voice, too, was sweet, like music, and it flowed along.

He was sayin', "You seem to be human, like this Robot here," he pointed to the giant, "but you are a weakling, undeveloped, inferior even to him. Where did you come from?"

I pointed to the wood. I was that dumfounded I couldn't speak.

He seemed startled at that. "From there—impossible! No one has been allowed to enter the Vanishing Wood this past thousand years!"

Then I found my voice again. "And I'm sorry I ever went in myself, or I wouldn't be here now."

"You speak our tongue, but strangely, barbarously. I wonder now, looking at you again." I could see his four eyes focussin' on me with great interest.

"But where am I," says I. Where's the meadow, an' the brook, and Blaymont? I musta fallen into Africa somewheres. This aint Long Island, is it?"

He was puzzled, I could see. "Blaymont, Africa, Long Island"—he repeated the names with that foreign accent of his, as if he never heard of 'em before. Then he looked at me suddenly.

"Why, I've heard of Africa and Long Island. Not the other though. Those are old, old names. This was once called Long Island, ten thousand years ago. And you, why certainly, you resemble those ancient pictures we have of primitive man." His excitement was growing. "Tell me what happened to you in that wood."

So I told him as best I could, from beginnin' to end. When I finished, he looked at me sorta awestruck. "What a marvelous find," he exclaims, "a primitive man from 18000 years ago! Alive! Now I know why that wood was forbidden. It's an entrance from other ages and other times!"

"Come with me," he says, "I'll take you to the council at once."

CHAPTER III

In 20,000 A.D.!

I WAS a bit worried, but he looked peaceful; so I jumps into the boat, as he motions. I looked about it curious. There was no motor or gadgets like we have in aeryplanes; only a little metal box in front with buttons on it. Karet—that's the fellow's name—hoists himself in beside me, shoots out a funny hand, and presses a button. A blue light shines over the box, and the plane rises off the ground right up into the air. The Robot is left below. We're up about 100 feet, when he presses another button. The light changes to reddish, and off we shoot on a straight line.

I'm too busy thinkin' to look where we're goin'. Somethin' he said, keeps stickin' in my mind. What was that about me bein' primitive—a barbarian. I felt kinda sore about that. I may not be a world beater, and I ain't got much book learnin', but that don't give nobody a right to call me names. Then he said somethin' about me bein' from 18000 years ago. That stopped me. That meant I've gotten somehow into the year 20,000, as near as I could figger. That was too much, an' I just stopped thinkin'.

While we was flyin' along I studied this queer chap some more. I've told you 'bout his four eyes—now I saw that he had no nose, just an opening in the middle of the face—shaped like—like—what do you call it, with three sides?

("Triangular," Sid interjected helpfully.

"That's the word I meant." Tom was properly grateful.)

Covering this tri—this three sided slit was a gauzy affair that moved in and out as the creature breathed. Below was the mouth. It didn't have no teeth, it was just a round hole that widened out flat when it talked.

What give me a turn, though, was the chap's arms and hands. There was only two of 'em, thank God, but they was long and wavy, just like on a devilfish, and they ended in five fingers, but the fingers was also long and wavy an' could curl any which way. And the creature could pull in its arms, till they was a foot long, or shoot 'em out for five or six feet. I never could get over that trick of theirs—it always gave me the jumps.

And his feet were queer too. They was long and flat, and solid like a horse's hoof. They was all bone—no flesh on 'em. He didn't wear no shoes; didn't need none, I guess.

Afterwards I saw that the other things, the Robots as the Balloon-heads called them, had the same kind of feet, only much bigger. Oh, and they also had four eyes—only they couldn't push the extra ones back into their foreheads; they was fixed in front by a bridge coming out from the tops of their noses.

The plane comes down to the ground, an' I looks around. I'm in a city, but what a city. I used to think New York was some pumpkins, but you can't get me to pay any attention to that, after what I've seen.

There were buildings on buildings, all of blue tile, and all with great rose colored domes over 'em. On the blue walls was worked in little colored stones the most beautiful paintings, the same as in church windows. Each building was surrounded by a park, with fountains and lights, and great wide streets ran out from each building through the park like the spokes of a wheel.

As we got out, I saw lots of creatures like the Robot, and a few like Karet. Karet told me that they were the Masters, who ruled the world, and the Robots were the workers.

The Masters came up to us, and looked me over while Karet explained who I was. They seemed pretty much excited about it. The Robots crowded around, talking and jabbering, but quite a distance away. You could see they daren't come too near to the Masters.

One of the balloon-heads says to Karet. "You'll have to take him before the Jed." And Karet says

"yes." He turns to me and says. "Come along."

So we go into the biggest building, that has a great gold sun in the blue tile over the entrance. Inside, it was all open, and the walls was covered with more pictures. I happened to look up to the dome, an' half way between the top and the floor, I saw a great white ball hangin' in the air. There was nothin' holding it there, no ropes or cables or anything. Just resting on air. Over it was a platform, and two Robots was standing guardlike.

Karet saw me look up, and says. "That's where Jed is—he's the Superman. I'm taking you to him."

"But how," I wanted to know. "I don't see no stairs to get up there."

"I'll show you," he answers, and he makes me stand with him on a little platform in the floor. He turns a knob, and the next second, we both goes right up into the air. Before I could get real scared, we land on the platform. Karet speaks to one of the guards, an' he bows, an' opens a sliding door in the ball. I had time to notice it was made o' thick glass—quartz, they tell me afterward.

I look down into it, expectin' to see a man or a Master or somethin' sitting on a throne like a King, but I sure didn't expect what I did see.

Jed was a tremendous brain—nothin' else, floatin' in the middle of a liquid like calf's foot jelly before it become hard. A great big gray brain, full o' lines and ridges an' deep twistings. It gave me the shivers to look at it. (Even now, at the memory, Tom shuddered.)

Would you believe it; thinkin' of that Jed, I can't eat calf's brains any more—it goes against me. And I used to be very fond of 'em fried in bread crumbs. (He sighed regretfully at the lost epicurean delicacy.)

Karet, very respectful like, tells Jed all about me, though it did seem laughable to tell things to a brain floatin' in jelly.

Then I gets a real shock. A voice speaks in my mind clear as a bell. "I already know of the coming of this Early American. It will be interesting to study him. Place him in the Robot barracks; treat him well. Have our scientists observe and question him. It may be that even with his limited intelligence, he can give us a valuable picture of the world in those primitive times."

Savage Revenge

I LOOKED all around me, ta see who was talkin'. But nobody was sayin' a word, an' how could Jed talk, seein' he was only a brain, and had no mouth nor nothing. Karet explains to me, however, that when Jed thinks, everyone can hear 'im. He's the only one can talk that way. Karet called it tele—tel—there, I do believe I've forgotten the word.

("Telepathy," suggested Sid.

"That's it—sure enough. Say, you fellers know a lot, alright," Tom responded admiringly. "Well, anyways, where was I?)

So Karet took me down again the same way, and we get in the flying car, an' start for the barracks.

On the way, he tells me about Jed. How he is the great Ruler of the World; that 2000 years before, one of the Masters had become so wise and knew so much that his brain didn't have room enough to expand in the skull, big as it was, and he told the other Masters to operate on him, take his brain out, put it in a certain kind o' jelly. They done that, and the brain has been growin' and growin'—all they have to do is to feed it once in a while. The brain became so wise that they made it ruler, and it's been livin' ever since. Karet said that it looked as if the Jed would live forever. An' as he says that, he fetches up a huge sigh.

I look at him surprised, and I says to myself. "Ho, ho, so that's the way the land lies! Friend Karet here's a mite jealous or ambitious. Bet he wouldn't mind takin' Jed's place—jelly an' all." And I thinks how little human nature changes, even 20,000 years ahead, and these queer people so far advanced.

All this time we been floating along over the big beautiful park where the Vanishing Wood is. At last the car floated to the ground in front of a long white building that stretched and stretched over acres o' ground. I never seen such a tremendous long building before. The place is full of those four-handed Robots, goin' in and out, carryin' queer things that resemble spades and shovels, an' all kinds o' strange tools I couldn't make out the use of.

Karet stops one of 'em, and I recognized him as the one I saw when I came out of that plaguey wood.

"Charlie, have this Early American share your cubicle with you, until further orders. And don't forget, gather the others together to-night in your room—the time is getting ripe for action."

"Yes, Master Karet, they are all ready—waiting for the word to go." Charlie's voice was harsh an' jagged, not like the Master's soft smooth speech at all. It sure was funny, though, to hear this four-eyed, four-armed, big black giant called Charlie. It puts me in mind of old Charlie Jones here, and every time I think of how they would stack up against each other, I has to laugh.

(And Tom stopped in his narrative long enough to laugh heartily, slapping his knee with merriment. Then he sobered rather suddenly.)

But something happened next that wasn't no laughing matter. It only showed that underneath all their highfalutin' civilization, they could be just as cruel an' savage as any heathen Indian in the old days.

One o' the Robots—a great hulking awkward brute—was walking along, minding his own business. He stumbles over something, an' falls against a Master, who was walkin' t' other way, an' knocks 'im down. The little feller musta gotten an awful whack, but 'twas purely accidental. I could swear for that.

The Master picks himself up, and the giant of a Robot backs away from him, apologizin' like mad, and all four hands waving like he was pleading for mercy. If ever I saw anyone scared to death it was that big black fellow.

The little balloon-head says nothing, but takes out a little tube as big as a fountain pen outa his pocket, points it at the beggin' Robot, presses somethin', an' a little spurt o' flame comes out. The giant jus' keels over like he's been shot, crashes to the ground, and lays there quiet.

The Master sorta brushes off his long creeper hands unconcerned like, puts the tube back in his pocket, and motions to two other Robots who were standin' there

wi' no expression on their faces. They lift up the dead body, an' cart it away.

All the while I'm standing there, dumfoundered, then I gets good and sore. For two cents I'da clouted that cold blooded little squirt one on the side o' his balloon that 'd a knocked him cold. But I hold myself in—for I remember where I am, an' God knows what they mighta done to me for that.

I could see Charlie goin' white wi' fury under that black o' his, his four great fists clench up tight, an' he starts for the murderer.

But Karet shoots out a long hand, an' stops him. "Careful, Charlie. That won't get you anywhere, and will be fatal to our plans. Bide your time, we'll soon put a stop to that sort of thing."

Charlie stops himself short—it was a great job for him to do it, too,—and unclenches his fists. "You're right, Karet, we must wait. But he'll pay for that, he will."

A New Conspirator

KARET waves a tentacle, gets into his car. "Tonight then" and off he flies.

"Come with me, Primitive" says Charlie to me.

"Who're you callin' names," I answers indignant. I was gettin' tired of the outlandish things they was sayin' about me all the time. "I'll have you know my name's Tom Jenkins, and that's as good as Charlie any day."

"All right, Tom. Tom it is from now on," laughs the giant. 'Twas the first time I see any one laugh in this place. The Masters couldn't laugh if they tried, what wi' their mouths so small, no nose to wrinkle up, cold eyes that couldn't twinkle and smooth brown skin that had no puckers in it. The Robots generally were dumb sort o' creatures, no more expression on their faces than a cow has. Only Charlie and some others like 'im looked an' acted intelligent and human like.

I'm beginning to feel friendly for this fellow—he seems a good sort—and he's the nearest to me they have around this place. An' he seems to take to me also.

So in we goes, an' it's a sure enough barracks. It's one long room, looks like a mile long, and on each wall there's bunks built in where the Robots sleep. Just room to turn around in. No furniture, no hangings nor carpets, just bare. Some of the bunks is filled wi' sleepin' Robots; in others, they're turnin' out an' dressin'! Simple enough too, justa pair o' breeches and yellow sleeveless shirt. All about the hall are hundreds of 'em, movin' about, goin' out, coming in.

Charlie steers me to a far corner of the place, that's partitioned off into a number of rooms. We enter one, and the giant says: "Here's where you'll stay—over there's your bed." And he points to a cot about 15 feet long. The room has two of them, a coupla queer looking chairs, so high I have to hoist myself up to sit on one, with my legs adangling. Nothing much else.

"But listen," I says, "when do we eat? Haven't had a bite since early this morning." Only then do I realize how much has happened to me since then.

"Hungry!" the big fellow seemed surprised. "Here, take one of these." And he fishes outta a box a little white pill, like calomel, and hands it to me.

"What's this?" I ask, looking at it.

"Your meal," says he.

I take a good look at him then to see if he's kiddin' me, but no, his face is as sober as a judge.

Then I get real angry. "What in 'ell do you think I am, a bloomin' butterfly? I want somethin' I kin wrap my jaws around—a nice juicy steak, say."

He was puzzled at that. He didn't always understand my language. For that matter their's had me guessin' too, often.

"Steak," says he, as though he was hearin' the word for the first time.

"Yes, steak—or any kind o' meat."

You shoulda see his eyes all open up, and he looks at me as if I was a cannibal or somethin'. "Meat!" he gasps, "why, that's vile. *We* don't eat flesh or anything else but these capsules. They're made up by the Masters and contain concentrated food. One a day is sufficient."

I grumbled a bit, but seeing there was nothing else, I took it. I figured I'd have to eat a million. But when I swallowed it, all my appetite disappeared, an' I felt like I'd eaten a full meal. It was wonderful. But I can't say as I cottoned to the idea much. I like my victuals, and I like plenty of 'em.

Then Charlie closes the door carefully after peeking out to see if anyone is watching, an' he turns to me.

"Listen, Tom, they say you came here somehow from a time 20,000 years ago. How, I don't know, but here you are. You look like one of us, too,—different of course, but not like a Master at all. Were there any Masters in your time?" he asked anxiously.

I explained to him the best I could about us, how we live, how everybody looks alike, how there are no Masters nor slaves either; how we're all equal and one man's no better from another.

He listens fascinated till I finish—then he jumps up in great excitement. "So there was a time when the Robots had everything, and there were no Masters, eh. They never told us that; they keep it a secret. Well, we'll soon be free again, and wipe that damned race out."

He spun around on me. "Are you with us or against us?" he asks hoarsely.

"I don't understand—against what?" I answers.

"The Masters, of course," he says impatient.

"Well," I said slowly, "they haven't harmed me any, and they seem pretty smart, too, but you fellows are nearer home to me, so I'd rather trail along with you. And I don't like this idea of slaves—goes against the grain. Mind you," I warned him, "that don't mean I'd do anything against 'em."

He nodded his head. "I think we can trust you. We're holding a meeting here soon, do you want to stay?"

I'm a mite cautious. "Providin' I don't have to commit myself to do anything."

Charlie was satisfied wi' that. "Providing you won't give us away." And to that I agrees. As though Tom Jenkins was the man to peach on anyone.

CHAPTER IV

Seeds of Revolution!

THEN I starts to question him about lots o' things been puzzlin' me 'bout this world o' theirs. He didn't know much about it—said only the Masters knew everything, and they kept things to themselves.

First off, I asked him where were all the women. Hadn't seen one around at all. Women? He'd never heard o' them. So thinking maybe they had another word for the sex, I explains them a bit. Then he brightened up. "Oh, you mean the Mothers! They are kept in the buildings over to the east—that great structure surrounded by the high wall."

"And don't they ever come out?"

"Oh no, that is not allowed. They must remain there, and fulfill their functions."

I thought of my ma, and all the gals I knew, and it didn't sound right to me. Jus' try and keep 'em all locked up together. Glory, but there'd be a revolution quick enough. Tear our hair out.

Then it all came out. There really were no women here—or men either, for that matter. Thousands o' years before, they'd stopped havin' babies in the regular fashion, and so, since there wasn't no use for men as men and women as women, why they simply stopped being. They're all the same, what they called neuters.

Charlie had never seen the Mothers, but he understood they were the breeders of the children. The Masters controlled what the child was gonna be—Master or Robot. Seems like they took the eggs from the Mothers 'bout eight months before they should be born an' brought them up in incubators. In Charlie's case and some others like him there musta been a mistake, for they gave 'em more brains and intelligence than they shoulda had. That's why they kin see they're slaves an' they're discontented.

While he's tellin' me all this, in walks half a dozen Robots in a bunch. Charlie jumps up an' says hullo to them, and they answers very solemn. He interduces me around, an' tells 'em where I come from. You shoulda seen how excited they get. We chin around for a spell—these birds are some more of the mistakes—they were given more brains than the regular dumb workers.

Then Karet walks in—an' everybody get quiet. You kin see he's their leader. Like I read in history—in the old days somewhere—a aristercrat leadin' the slaves 'gainst his own kind.

He makes 'em a long speech—the kind you hear around election time. He tells 'em, even though he's a Master, he always felt sorry for the poor Robots, workin' day in an' day out, so his class can live in idleness. True, he says, the Masters are far advanced, an' able to do lots o' things as a result. They've learnt everything there was to be learnt, they can live on the earth, in the air, in the water, or underground; they can travel to the other stars; they know how the world come about an' when it's ending, they think great thoughts an' things I couldn't even understand, but, he says, what about the Robots? An' everybody nods their heads an' says, yes, what about them.

They're just animals, they're bred deliberately to slave and work, they don't have ta think hard for that, so they weren't given any brains, or just enough for their purposes. You here, and he waves a tentacle around, were accidents. The injections given you in the incubator musta had some drops spilled in 'em from the Master solutions, an' you were born with real brains. Do you know, and he shook that long hand o' his impressively at 'em,—do you know, t'other Masters wanted to kill you off when they found out the mistake—they were afraid of how the presence of brains might make you dissatisfied. 'Twas only me who stopped 'em—I argued with 'em and told 'em you would be an interesting experiment. So they let you live, but no more of you can be born now, they've seen to that.

An' who's responsible for all this, may I ask, he says, talking like a politician on the 4th o' July, who's responsible for havin' Masters an' Robots? He waits for an answer, but no one says anything. So he answers himself. Who but Jed,—Jed the immortal, Jed the all-powerful.

A thousand years ago, things were entirely different. There was two races on this earth then—one like us, and one like you. Your race came up by regular evolution from early mankind, like our visitor here, an' he points to me. T'other race, mine, was a special evolution from certain wise men, 15,000 years ago, who learnt how to change their children, and their children's children, to what they called supermen. But outside a certain difference in brains in our favor, both races managed to get along together. That was because of the machines.

In those days, everything was done by machinery. All the work you do, and much more. No one had to work at all. But the machines were made better an' better, until they become almost human. Their acts were so intelligent they become intelligent themselves.

One fine day, the machines banded themselves together, an' started a revolution against the human race. It was terrible. Before they were licked, they almost wiped out humanity. 'Twas Jed who saved us, and defeated 'em. How, I don't know.

Ready for Action

THEN Jed had all the machines destroyed, an' all books about 'em, so they could never be built again. So as to have someone to do the work, he changed the solutions for your race, and you became what you are to-day, and the others became the Masters. Jed was one of us in the beginning, don't forget.

Now here's my plan. The Robots will follow you—I've shown you already how to control them. The Masters have their ray projectors, that can kill anything within twenty-five yards. So they could wipe you out if you attacked 'em.

But I'm in charge of the Mothers. If we all gather in the city of the Mothers, an' seize 'em, then we can tell the Masters and Jed, unless they listen to our demands, we'll kill off all the Mothers. Then there'll be no more people born, and the world will die out. Rather than that, they'll surrender.

I'll take Jed's place as Ruler. We'll try an' build the machines again to do the world's work. An' we'll fix the solutions for the unborn children so everybody of

both races 'll have equal intelligence, an' be equal in everything.

The roomful starts to clap at this like mad, an' it's a funny sight to see those double sets o'hands bangin' away, not to mention the noise they make.

Karet raises one o' his long hands for silence. "You'll be givin' us away if a Master should happen to be around" So they all stop, and it's quiet again.

"Tomorrow noon is the time. Get everything prepared tonight. At noon, shout the control words and march the Robots to the city of Mothers as fast as you can. That's all, now."

The gang gets up and is ready to go, when Karet sorta sees me again.

"Oh, I've almost forgot," he says, "Jed has ordered our visitor to be brought before the scientists. They will remove his brain for study. By examining its folds, they will be able to find out all he knows about the world of 20,000 years ago he lived in. It's much easier than asking him about it."

You kin imagine how I jumped at that. Take my brain out o' my head—over my dead body,—and I tells him so in plain language.

Would you believe it—he has the nerve to try an' persuade me. It won't hurt, he says, it's in the interest of science; they'll put it back in again after, 'n I won't even know it's been out.

But that don't make a hit with me at all. I tells 'em flat I won't stand for it, even if I has to kill someone.

Karet shakes his head sorta puzzled, just like he can't understand my feelin's

"Well," he says finally, "they're coming for you right away."

"Lemme outa here," I says wildly, "I won't let 'em get me."

"Where'll you go to?" asks Karet, and that stumps me. They'll sure catch me. I'm wishin' I never went in that darned wood, 'n I was safe home again. A cold sweat breaks out, all over me. Take my brain out, I should say not. I'd ruther die first!

Karet shakes his head. "I'm sorry, my friend, I don't think they're going to ask you what you'd rather do. They'll just go right ahead without askin' any questions."

I was all of a shiver. I didn't like the idea at all. How'd I know that they could get my brain back? I grabs hold o' my gun, I was goin' to fight. Then, all of a sudden, I thinks of a way to make Karet, and Charlie, and the gang help me.

"Listen here," I says to Karet, brash-like, "you say they kin read everything that's in my brain."

"Of course," he answers.

"Every little thing I ever seed or heard," I insists.

"Yes."

"Well then," and I taps with my gun on his chest, "how about this little cofab I just been listenin' in on. They'll read that, won't they?"

That strikes him all of a heap. "He's right"—he says to Charlie "we've got to hide him somehow!"

Just then I hear a noise outside, the sound of people comin'.

"It's the guard," says Karet, excited, "they're coming for you."

I'm trapped, no mistakin' that. "Tom my lad," says I to myself, "you're through; you'll never see your poor old mother again, but you're not givin' up without a scrap." So I pulls the gun an' get ready to shoot the first one that comes in the door.

I could see the crowd in the room lookin' at the pistol curious. They'd never seen one before. The footsteps gets louder. The guard's almost at the door. My finger's on the trigger, ready ta shoot.

Just then Karet jumps up. "I've got it. Charlie," he orders rapidly, "take him through the trap over to the City of Mothers. Hide him in the top Tower. Quick!"

Someone presses a button, Charlie shoves me through a door that slides open in the wall, and closes it behind us just as the outside door opens. I hear "By order of Jed, we've come for ——," an' we're runnin' in a tunnel. Soon we come out in the open. It's night, an' the whole place is lit up beautiful. The buildings are all glowin', the fountains are playin' wi' colored lights, the stars are shinin', but Charlie jerks me impatient. "Come, we'll have to move fast. It's quite a ways."

"Why don't we take one of those air cars," I says.

"Because I don't know how to handle them—not allowed."

Revolt!

SO we walks rapidly. I'm havin' a hard job to keep up wi' the giant; ducking every time we see a Master. About an hour, and we come to the place.

It's a tremendous big structure, lit up with a golden light; there's a center tower 'bout ten stories high, an' there's a wall all around the place, twenty-foot high.

There's an entrance through the wall but a big savage-looking Robot stands on guard. We walks up to him, me shiverin' like a leaf. Charlie says some word to him I don't catch; he looks at us dumb, and lets us in.

We hotfoot it for the tower, lucky not to meet anyone. Inside there's a sort of airshaft leadin' all the way to the top. Charlie looks at it puzzled.

"I forgot to ask Master Karet how to work it," he explains, "there's some way of getting up there."

I remembered how I was brought up to Jed, and I looks around for the platform and button. Sure enough I found 'em, and shows 'em to friend Charlie.

"You go up and hide on the top," he says relieved. "I daren't stay around; I'd be killed if a Master should find me in here. It's forbidden. Goodbye—see you tomorrow at noon when things start humming."

I shook one of his big hands, stood on the platform, pressed the button, and up I shoot into the air, up to the top where I land in a sort of entrance hall. Lots of doors leading out, all closed.

I take a chance an' open one just a little bit. Peeking in, I see a great white room, with one o' the most beautiful women I ever did see. Pretty as a picture, golden haired, but tall—ten feet easy. There was a Master in the room, and he was carryin' a dish filled with somethin' to a tank.

I closed the door very quietly, an' tried another door at t' other end. This one was empty, so I eased into it, and closed the door.

For the first time, I felt dead tired. What a lot I'd

been through since the morning. It didn't seem possible. Felt like months since I walked into the Vanishing Wood. And what was goin' to happen to me? Would I ever get back? And as I'm wondering and worrying, my eyes jus' naturally closed, and I fell fast asleep on the floor.

When I wake up, the sunshine is streaming in through a window. I look around a bit dazed, and wonderin' where I am. Then it dawns on me, as I hear a great shouting, but faint as if coming from far off.

I jumped up and ran to the window. Way below I see a great sight. Thousands 'n thousands of Robots—tiny enough they looked from where I was—were marching towards me. They were yelling, and what a hullabaloo it made.

I seen Masters runnin' up, an' off in the distance aeryplanes skooting along towards 'em. From the Masters I see tiny flames adarting, and down fall Robots. Some make a rush for the Masters. Most drop before they reach 'em, but every once in so often one or two manage to break through, and when they do—you see little bits of the poor Balloon-Head go flying through the air. Powerful brutes—those Robots.

The main body keeps marching fast to the gate, not stopping to fight. I prays for 'em to hurry, for I see the airships comin' álong fast.

They're at the gate as the first ships reach. The little flashes dart down among the mass, and the Robots are droppin' like flies. I shut my eyes and groan. This is the end.

When I opens 'em again, a great bunch of 'em have scrambled thro', an' are rushing helter skelter into all the buildings. The next minute, there's a racket out in the hall, and I grabs my gun.

The door bursts open, and in tumbles Karet, Charlie, an' a dozen others. I almost shoots in my nervousness.

"We've got 'em now," gasps Karet, exultant. "They daren't use their tubes on the City of Mothers—they know they'd wipe out the race."

They're all excited and happy. I grabs Charlie and asks him what's happened. He can't hardly stand still in his excitement, but he tells me that there wuz so many of the Robots, and the Masters wuz so surprised, that Karet's side has got control of the City of Mothers, as this place is called. I'm kinda glad too.

Karet gets a little calmed down. From somewheres he brings out somethin' that looks like one of them French telephones I seen in the Bank in Mineola. There's a coil of wire hangin' onta it. He unrolls this and throws it out o' the window. Then he talks into the dingus.

"Give me the general channel," he says. Then he waits a minute, and then talks again.

"Master Karet speaking. To all Masters of Earth. I have captured the City of Mothers and hold it secure. Unless I receive word from you in ten minutes that you will bow down to me and obey my commands, all the Mothers will be killed, and all the eggs now here destroyed. As you know, that will mean the end of the race. If you surrender to me I promise that I shall make good terms. I await your reply."

Then he puts down the telephone and begins giving orders to Charlie and the other Robots. He trys to look calm, but I can see he's all nervous. The rest o' the gang is jumping around and jabberin' away at a great rate.

At lst there's a kind of a whistle from the dingus and Karet grabs it quick. "Karet listening."

The gang gets quiet, and waits. I'm all worked up, too, and I'm shivering all over. All of a sudden Karet gives a great shout.

"They've given in!" he yells. "We've won! Run, tell them all!"

With that the gang rushes for the door, Karet after them. Pretty soon I hears a lot o' shoutin' and yellin' from the mob below. I know that they've heard the news. So I goes below too, to see what's goin' to happen next.

(Tom's pipe again needed replenishing. I seized the opportunity to shift to a chair whose seat was softer than the one I had been filling with my bulk.)

CHAPTER V

Tense Moments

WELL, sirs, after the mob got done hollering over this easy success, Karet got 'em all together out in the park in front of the City of Mothers. They was thousands an' thousands of them, and they was all happier than they had ever been before. Poor fellows, their happiness didn't last long.

I'm tryin' to figure out how I could get out of the whole thing. Somethin' told me things was going too easy, I was sure somethin' terrible was going to happen.

Karet floated in his canoe up where everybody could see him. He had some kind of contraption in his hand, somethin' like a telephone an' megaphone combined. He stood up and bgan to talk in it.

I was far away from where he was, way out on the edge of the crowd, but I could hear every word he says, just as if he was talking right to me.

He talked nice and smooth, and he got right down under the skin o' them Robots. He told them what a wonderful victory they had won, and how they had showed themselves the equal o' the Masters. An' he told them that he would keep his promises, and free them like he had said he would, and would give them each a part of all the good things that the Masters had always had.

That went over big, and the mob howled and cheered. And some o' the poor fellows cried with joy. But I kept feelin' that something terrible was agoin' to happen.

Then Karet went on. He said that they wasn't done yet, that they had only done half o' what was necessary. And he spoke about Jed, and reminded them that it was the Jed that was the real Master, and that the Masters that had always kept them down was only doing what Jed told them. And he talked about that cold, unhuman Brain, and as how it had lived for hundreds and hundreds o' years, and as how it would go on living forever so long as the jelly it floated in was kept just right.

As we listened to Tom's unschooled rendition of the speech of the rebel leader I could picture the scene, and realize how this Superhuman was swaying the recently freed slaves with his eloquence.

And then Karet told them that so long as Jed still lived, they wasn't safe. That they must kill him—and

then the world would surely belong to the Robots.

The crowd kind o' fell silent when their leader first mentioned Jed, and they was awful uneasy. But as he went on—and he was a wonderful talker, almost as good as our preacher down in Blaymont— they began to yell and shout. Somebody yelled "Down with Jed, kill him!" and the whole crowd took up the cry, "Kill! kill! kill Jed!" But I was thinking to myself—"So that's your game. You're goin' to get these poor fools to kill *your* Master, and then you're agoin' to take his place, and God pity these poor Robots then." For I didn't trust the fellow, nohow. And more and more I felt that somethin' awful was goin' to happen, and I was trying to figure out how I could get out of the mess. But somethin' kept me there. I just *had* to see what would happen next.

(Sid muttered to me, "I couldn't have left that scene myself," and I nodded in agreement. Tom was stuffing his pipe again, and I was on tenterhooks to hear what the next incident in the strange story would be. Through the window a faint lightening in the sky spoke of approaching dawn, but none of us felt in the least sleepy. The room was hazy with smoke, and fetid with the odor of burned tobacco. Around our chairs, Sid's and mine, were scattered oceans of cigarette butts.

At last Tom had finished replenishing his briar and began again.)

While the shoutin' was at its height, I felt a touch on my arm. I turned, and saw Charlie standing there. In one o' his hands he had something I had never seen before. It looked like a book, not very thick but very long and wide. But it wasn't paper, it looked like some metal. Charlie's eyes was kind o' sad, all his excitement seemed to have died down. I asked him what he wanted.

"Tom," he says, "I've got a feeling that I won't live long. This here's a record o' the past that I've been takin' care of. We Robots have hidden it from the Masters for many, many years. No one knows how old it is, and no one can tell what it says. But we have an idea that it's older than Jed. I have sworn to see that it comes to no harm. Will you take it, and give it back to me if Jed is killed and I am still alive? If not, you keep it safe."

Well, sirs, I didn't know what to make o' this queer favor he was askin', and I didn't much like the idea, but the poor fellow looked so sad and begged so hard that I couldn't say no. So I took the book and shoved it inside my shirt and buckled my belt around it. It wasn't very comfortable, I'll tell the world.

(Sid had gripped my arm as Tom told of the book, so hard that I could hardly refrain from crying out. Now he burst forth. "Where is it, have you got it?"

Imperturbable as ever, Tom replied, "I'll tell you about that later." With this we had to remain content. We had learned that Jenkins must be permitted to tell his story in his own way.)

I never saw Charlie again!

By this time the crowd had started rushing toward the other end of the park, where Jed was. They was still yelling, "Kill! Kill!" and they was waving all their arms in the air. Have you ever seen the ocean in a storm, when the waves are rushing up on the beach? That's how that mob looked.

The Dread Words of Jed

I DIDN'T want to go along. I was scared. But before I could get out I was mixed up in that rushin' crowd, and I was carried along with it. They ran through that beautiful park; over the grass and the flowers, and everything, tramplin' it all down. They even threw down the fountains. I kept hangin' back as much as I could, but I couldn't get out of that crazy gang until we was in sight of the big building where the Jed was.

When I found myself free I began to run back. I had been getting scareder and scareder, and I had made up my mind I was goin' back to the Vanishing Wood to see if maybe I could get back to my own days. I was so scared of what I could feel was coming that I didn't care what happened to me so long as I wasn't in that park any longer.

But I hadn't run more'n a hundred yards when I heard a terrible sound. It was like a groan, but like no groan that I'd ever heard, 'cause it came from all o' them thousands and thousands o' black creatures that was shouting and running to kill Jed.

I turned around to see what had happened. I saw that the whole o' that big crowd was standing stock still and looking ahead o' them. Again my wanting to know what was going on got stronger than my being scared, so I stopped too. I couldn't see what they was looking at, so I climbed a tree.

"I wish I hadn't!"

(Tom paused, and put one huge hand over his eyes, as if to shut out some terrible sight. Sid and I looked at each other. What horror could have brought that look of terror into the eyes of this phlegmatic farmer?

A long pause, and then he spoke to us.

"I disremember if I told you about the Jedauds. Did I?"

I answered in the negative.)

Well, at certain times o' the year the Masters from all over the world would come to this place to bow down to Jed. There was too many of them to all get inside the building so they would all stand in the big open space around it. And the building where Jed was would open out, so that there was nothing but a great roof floating up in the air, and the big white ball floating under it.

That's what the crowd was lookin' at. The sides of the building were gone, an' there was that rosy roof ahangin' 'way up in the air, and under it the big white ball in which Jed lived!

But, gents, that ball wasn't still. No. Even from far away where I was, I could see that it was spinnin' round and round. When I first see it, it's turning very slow like, but as I watches, it goes faster and faster till it seems like it's still again, it's going so fast.

Meanwhile the sky's gettin' darker and darker. I don't know what time o' day it was, but it seems to me that the darkness was unnatural. It's getting cold too, and a wind like ice blows towards me.

As it gets dark, that spinnin' ball begins to shine. It's white at first, and then different colors begin to come and go over it. Pretty colors. Like you see when you spill oil on the water in a swamp to kill skeeters. Only

these colors keep coming and going all over. There's a word for that kind of colors.

("Iridescence," Sid supplied.)

That's it! Then all of a sudden I hears that sweet voice of Jed's stalkin' in my brain. Kinda faint, I'm a long ways off. But those words is burned into my brain, I'll never forget them as long as I live.

(That look of horror had been deepening in Tom's eyes. His pipe had gone out, and he had visibly paled. As he talked he had been staring at the flame in the oil lamp on the table, staring fixedly, unblinkingly. Now, as he spoke of the Jed, expression seemed to drain from his face, his eyes became glassy. He seemed to speak by rote, his unschooled locutions vanished. We seemed to hear the very voice of Jed.)

There was no emotion in that voice, yet somehow I felt an unutterable disdain, an abysmal contempt in its tones. I felt small, very small, and insignificant.

"So you came to kill Jed! Karet, you and your dupes! And you think that you can succeed. Know you not that Jed is immortal? Aye, immortal not only against the natural processes that age and decay your paltry carcasses, but against violence and accident!

"You, traitorous Karet, would kill Jed and take his place. Before you can do that, before you can hope to match your paltry wits against my wisdom, you must live and learn, as I have, for ten thousand years.

"Think you that you, in your paltry span of three hundred years, with your circumscribed brain, body hampered, could hope to know a thousandth of what I know? You would wrest the world from me! For the first time since the invaders from Jupiter matched their puny might against mine, I am amused. Why, the Machines in their revolt were more potent by far than you!

"You and the other Masters, as you loved to style yourselves, dreamed that I lived at your sufferance, that I ruled by your good will. What presumptuous ignorance.

"I need not you, nor any other being on this earth. Were it not that I cared not to exert myself, I should have long ruled alone, to carry out the destiny of this fair planet. While you were faithful servants of my will I tolerated you. Now, that you delude yourself, I shall make an end of you, and of all your dupes. Prepare to meet your doom!"

(With this last dread sentence the voice fell silent. Tom's eyes closed, he seemed asleep. Sid shook him, he woke with a start.

"Where was I, what happened?"

"You had just told us what Jed said, begin again where he stopped," I said, soothingly.)

Through 18,000 Years

AS Jed stopped talking in my head, (Tom went on) I saw a shiver run over that crowd in front of me. They seemed to be tryin' to get away, but they couldn't move. I could see Karet, and he was pushing the buttons on the box in his flyin' machine, but it didn't do no good. I hope never to see a look on any man like what was on his face then.

All this time the pretty colors had been runnin' and flowin' over the ball. But now they all flowed together, and they all became violet. Not a pretty violet like the flowers, but a deep dark color. And the color got darker and darker till all of a sudden there wasn't any light at all. I couldn't *see* the ball, but I *knew* it was still there.

For a minute it was pitch dark, and I couldn't see nothing at all. Then sudden like, I could see the crowd, and Karet floatin' there above them. There wasn't no light shining on them, they was shining themselves! They looked like ghosts, *red* ghosts, stretching away there, close together, as far as I could see. The light that was shining from them was a red light, an awful deep red.

They were shining brighter and brighter—now they all looks like red-hot iron just out of the forge. And they *are* hot, too, I can *feel* that heat coming to me like from a blazin' furnace. The trees around begin to shrivel in the heat, and the grass.

I'm sittin' there in that tree, spell-bound, with my mouth hangin' open like any gapin' fool. But when they begins to *melt* I've had enough. I lets out a shriek and falls out of my tree. I don't know why I didn't get hurt falling, I don't even remember hitting the ground. All I could think of was the Vanishing Wood. I wanted to get away, to get out of that terrible place.

I run till my lungs are bursting, and at last I see the blessed wood ahead of me. I don't stop to look if the trees are twisted as before, and I don't look behind me, but just plunges right in. There's the path, and as I step on it I feel the same thing pulling me. I get into that Nothing again, all twisted up like I was at first, and there I am, lying on the ground, way back there in the Vanishing Wood.

I lay there for a long time, trembling. I was awful scared. I was scared for fear that I hadn't gotten out of the time I had run away from, and I'm scared for fear I landed in some other terrible time.

At last I pull myself together and walk slowly down the path. When I get to the edge, I hide behind a tree and stick my head out, fearful o' what I should see.

Thank God! There's old man Brown's meadow, an' the cows, an' the little brook. I'm saved from those terrible things—I'm home again!

* * * * *

Tom's tired voice ceased, his head drooped wearily. We too slumped back in our chairs, terribly tired by the tense strain of the long listening. Amid the ashes and the half-burned cigarettes were strewn the white sheets on which we had scribbled the story of the strangest adventure man has ever had.

The man to whom all this had occurred straightened. A challenge was in his eyes.

"Do you believe me?" he demanded.

In one voice we assured him we did, and we were not lying.

"'Cause if you don't," he went on, still unconvinced, "there's the Vanishing Wood out there, and you can go and see for yourselves!" He pointed to the window, bright now with the new day.

Sid and I looked at each other. Then we shook our heads.

"No, Tom, we'll take your word."

We gathered our papers, donned our hats and coats, turned to thank Tom again and say goodbye. Suddenly Sid started.

"My God, I almost forgot! The book, Tom, what happened to the book?"

"Why, I've got it right here. It was still inside my shirt when I got back." He went to a cupboard, opened it, and came back carrying something.

Eagerly we seized the volume. The size and shape of the old school geographies, it was made of some light metal. The leaves were thin, almost as thin as gold leaf. On them we could make out many symbols, closely written.

"What are you going to do with this, Tom?"

"Take it. I don't want it around I want nothing that'll remind me of that terrible trip."

All our protests; our offers to pay well for the volume, were useless. Either we'd take it as a gift or he would destroy it.

* * * * *

We have been studying that book. It appears to be a compilation of epochal events in the history of the world, for some thousands of years in what is to us, the future. Each event is narrated by a participant or eye-witness. As we translate, we grow more elated at our find.

But a great fever seizes us. We want to see that strange world of the future. We talk about it, Sid and I, and speculate on what we shall find. And perhaps some day we shall quietly step into the Vanishing Wood and bridge the gap that separates us from the year 20,000 A. D.!

THE END.

In the October Issue:

"THE WAR LORD OF VENUS"

By Frank J. Bridge

A continuation of this marvelous struggle for control of a world removed thirty million miles and fifty million years.

"THE EMPIRE IN THE SKY"

By Ralph Wilkins

A thrilling "air wonder" adventure into a nation existing in the great blue skies—with mystery, intrigue and a startling climax.

"THE LIZARD-MEN OF BUH-LO"

By Francis Flagg

He stepped through a door in space and disappeared. Years passed before word came. Don't mind this latest dimension-traveling story by our well-known author!

AND MANY OTHERS.

SCIENCE QUESTIONNAIRE

1. What is the velocity of the cathode stream? How is it produced? (Page 337)
2. What is the penetrating power of cosmic rays? (Page 337)
3. How is sound sent over light beams? (Page 341)
4. What is the most necessary feature in the radio control of bombing planes? (Page 357)
5. What is it that turns the train of a comet away from the sun? (Page 295)
6. What does the "conjunction of Venus with the earth" mean? (Page 299)
7. What is the minimum distance of Venus from the earth? (Page 299)
8. What is the diameter; distance from the sun; period of revolution and period of rotation of Venus? (Page 300)
9. How many moons has Mars? (Page 346)
10. What is the great factor in determining our mental and physical growth? (Page 326)

THE TRAGEDY OF

BY CAPTAIN

BILL WEBSTER recovered consciousness with a groan. His eyelids lifted for an instant but dropped quickly at the glare of the tropical sun overhead. Slowly and with infinite effort he rolled himself over and again opened his eyes. He lay on a narrow strip of beach between the yet turbulent sea and a riot of wind-torn jungle. He stared stupidly at the scene and gradually his mind awoke to a remembrance of the events of the night before.

"Shipwrecked!" he muttered. He struggled to a sitting position and stared around. "Yes, sir," he went on, "shipwrecked as sure as shooting. I wonder whether any of the rest got ashore."

He attempted to rise but sank back with a groan. He drew up first one leg and then the other and carefully felt them over. Satisfied, he went over his arms and his ribs.

"No bones broken," he said when he had finished his inspection, "but I'm pounded to a jelly. I wonder where I am anyway."

He looked out at the sea but found no answer there and turned his gaze inland. A moving object a few feet from him attracted his attention and he stared at it in horrified fascination. The crawling object moved nearer, crouching as though for a spring and with a yell of horror he bounded to his feet, his sore muscles completely forgotten.

As he scrambled up the object launched itself through the air for a distance of ten feet and landed on the spot where Webster's head had been resting. Webster looked around for a weapon and saw a piece of driftwood a dozen feet away. He reached for it just in

(*Illustrated by Paul*)

The Doctor met the first spider. He threw himself on it, then . . . another monster sprang through the air and landed on his neck.

SPIDER ISLAND

S. P. MEEK, U. S. A.

time for a hairy body whizzed through the air. It was a matter of seconds for Webster to seize the driftwood and take the offensive against his assailant. He struck viciously at the thing but it bounded back and as Webster approached it sprang again at his face. Webster sidestepped in the nick of time and hurled his club as the thing landed. His aim was true and a moment later he regained his club and rained blows on his late enemy.

"That must be the grand-daddy of all the spiders in the world," mused Webster as he gazed at the sand. Before him lay the crushed body of an arthropod resembling a spider in appearance but bigger than any spider that Webster had heard of. The body was as large as a dinner plate and the eight legs spanned a circle four feet in diameter. Gingerly he lifted the dead monster by one leg and whistled in amazement as he felt its weight.

"It's too bad old Doc Torby isn't here," he said with a chuckle. "He'd get right down on his knees and worship a bug of that size. I hope Doc came through all right." If I thought I'd run into him, I'd lug this fellow along with me, but I guess I won't. I wonder what is the correct thing to do under these circumstances. I'm thirsty as the devil. It seems to me that all the shipwrecked people I ever read about in books always found plenty of cocoanuts which served them for food and drink but I must have picked the wrong island to get wrecked on."

He gazed quizzically at the jungle but it was of low dense growth which offered little evidence of either food or drink.

"Where there's so much vegetation there must be surplus water," he mused. "I expect that the best thing to do is to follow the shore line. The going looks easy and the water must empty into the ocean somewhere."

He glanced both ways along the beach and with a shrug of his shoulders he started north along the beach. He went a few steps and then retraced his path and picked up the bit of driftwood which had served him so well in his battle with the spider and with it in his hand he again strode forward.

For half a mile he followed the irregular beach without finding water or a break in the solid wall of jungle on his right. Several times he started to throw away the driftwood but each time he thought better of it and

kept it in his hand. The stiffness left his muscles and his gait soon regained the springiness and sureness which had won for him the nickname "Catfoot" Webster in many a hard fought football game.

Attired only in a torn white shirt and a pair of denim trousers crusted with salt water, there was yet about him an indefinable air of distinction and anyone glancing even casually at the clear blue eyes under his high forehead surmounted by crisp brown curls would have seen intelligence depicted there. A further glance at his straight nose with its finely cut sensitive nostrils would have confirmed the impression while his firm chin, jutting out a trifle too prominently for classical beauty, more than hinted at the fighting spirit that had put Stanford's best half-back on more than half of the All-American elevens. Six feet two inches of frame carried a hundred and ninety pounds of bone and muscle, for Bill Webster revelled in physical fitness and had not allowed himself to get out of training during the year since his graduation.

He rounded a point and gave an exclamation of joy at the sight of a small stream trickling down to the sea. He hastened his steps toward it when a scream from the jungle brought him to a sudden halt.

"What the dickens?" he exclaimed and listened intently.

CAPTAIN MEEK has the rare ability of not only giving us stories of daring imaginative content but also, at the same time keeping both feet on the ground so that the stories never seem anything but real. The present story embodies all of his excellent qualities.

The discovery of the conditions in our body that regulate our mental and physical growth has come only in the past few years. The question of why certain people should be short and others tall, some slender and others fat, brilliant or stupid has puzzled the world from time immemorial. All sorts of fantastic explanations were used when man's mind was enslaved by superstition; and he accepted them. Now he is learning that the explanations are more or less simple; that mental and physical growth are to a large extent the result of the activity of our glands. How this idea can be used to construct a thrilling story of adventure, you will find in these pages.

A Human Victim

AGAIN came the scream, appallingly human and from nearby in the jungle. He hesitated for a moment but the cry once more split the silence and this time he could distinguish words.

"Daddy, help!" he heard. "Help me, quick!"

He hesitated no longer but grasped his club more firmly and plunged into the tangled mass of vegetation. There was silence for a moment as he plowed his way forward and then came scream after scream and then a low moaning. With a muttered curse at the creepers which held him back, he forged ahead.

Twenty yards of effort brought him to an open glade and he paused in amazement at what he saw. Stretched between two huge trees was what looked like a spider web made of clothesline and caught in its meshes and trying vainly to free herself was a girl. Her struggles had broken some of the strands of the net but the broken ends had whipped about her and held her more firmly. Down the net which sagged under its weight came a spider. Webster rubbed his eyes and looked again for the body of the *arachnida* measured fully two feet across and the enormous legs spanned a spread of fifteen feet. The girl screamed again as one of the spider's legs raked her back, tearing the clothing from her shoulder and leaving a deep scratch which rapidly showed crimson. With a shout, Webster rushed to her rescue.

The girl heard his shout and turned her head toward him. Her struggles ceased and she called out but Webster did not understand her and he launched himself at the builder of the web. The spider retreated at his onslaught and he grasped the web to tear it down. The web was sticky and tenuous and as he broke the first strand it whipped around his wrist while another caught his trouser leg. He pulled back but the web gave and another strand came in contact with his shirt. He fought desperately for a moment before the voice of the girl penetrated to his consciousness.

"Don't struggle!" she cried. "If you do, you'll never get out. Keep still!"

He ceased his struggles at the words and looked at her. She had a beautiful oval face; a slim graceful body with a head topped by a mass of sleek brown hair. She was held with her bare and bleeding skin exposed and he found time to marvel at the whiteness of it and at the rounded contours of her shoulders.

"I'm standing quietly," he said unsteadily. "What shall I do next? You seem to know more about this kind of a mess than I do."

"How many strands are holding you?" she asked, looking at him dazedly.

"Four," he replied after an inspection, "one on my left wrist and the others on my body."

"Don't use your free hand to break a strand. Have you a weapon of any sort?"

"I have a club."

"See if you can't free your left hand with it. Work carefully; if you strike hard you'll just tangle yourself up worse."

Cautiously he raised the driftwood and entangled it in the strand holding his left hand. With a slow steady heave he broke the strand but the club was hopelessly entangled in the web.

"Both hands are free but I have lost my club," he said. "What next?"

"Move slowly backwards until you have strained the strands holding you almost to the breaking point and then throw yourself back with all your weight. Break any tag ends holding you later."

Slowly he moved back. The strands of the giant web stretched and the spider ran rapidly down the web toward him. Webster threw himself backward with all his force and the web parted. He rolled on the ground with two strands wrapped about his legs. He

grasped the grass with both hands and pulled himself along the ground. First one and then the other of the strands parted and he stood up free. The spider had run down the web until it had almost reached him and now sat at the edge of the broken web, glaring at him.

"I'm free," called Webster. "What next?"

"Get my flash tube," she said.

"Your what?"

"My flash tube. It's a shiny nickeled tube and it ought to be somewhere close to my feet. I dropped it when I was first caught."

Webster searched in the tall growth for the object she had described. From the corner of his eye he could see the spider approaching the girl and he straightened up and shook his fist at it. The spider stopped at the gesture and regarded him balefully.

"Can't you find it?" asked the girl in a broken voice.

"Here it is," he cried as he pounced on it. "How do I use it?"

"Just like a flashlight. Point it at the spider and press the button."

Webster followed her instructions. As he pressed the button he felt a slight shock and a pale yellow ray, visible even in the daylight, shot through the air. It struck the spider who retreated rapidly up the web.

"Now put the end of the tube within an inch of one of the strands holding me and keep the ray on it until it parts. Don't get tangled up yourself!"

He edged forward until he was a few inches from the web. Again the yellow ray shot out from the tube and in a few seconds one of the strands which held the girl captive parted. Strand after strand gave before the strange force in the little tube. The spider, enraged at the sight of its prey escaping, ran down the web again but Webster turned the ray on it and it retreated and disappeared in the foliage. It was a matter of moments until the last strand was severed and the girl moved cautiously out of the web.

CAPTAIN S. P. MEEK, U.S.A.

She threw the tattered ends of her garment back over her shoulder and held them in place while she smiled rather wanly at her rescuer.

"Thanks," she said simply, "you came just in time. I think I would have been gone if you had been two minutes later."

"Thank *you!*" he rejoined. "If you hadn't kept your head and told me just what to do we'd both be hung up there like flies."

She shuddered at his words and swayed toward him.

"I'm sorry," she murmured as he caught her, "but I'm afraid—I'm going—to faint."

CHAPTER II

The Maker of Spiders

AS she said the last words she slumped forward a dead weight in his arms. Webster glanced around hastily and then lifted her like a baby and plunged into the jungle. At the edge of the stream he laid her down and sprinkled her with water from his cupped hands. In a moment she opened eyes that reminded Webster of violets and smiled.

"Excuse me for being so silly," she said as she rose to her feet, "but my nerves are a little jumpy. Who are you and where did you come from so opportunely? That is," she added hastily, "if it's any of my business."

"I'm Bill Webster of San Francisco," he replied. "I came off my father's yacht, the *Helen Webster,* when it broke up on a reef in the storm last night. I went into the water and tried to swim. I was all right for a while but no one could swim long in such a sea and I went out. I woke up on the beach about a mile from here somewhat the worse for wear."

"Did any of the rest——" She paused suddenly.

"I'm afraid not. We weren't able to launch any boats and the sea was bad."

"I'm so sorry," she said, her voice vibrant with sympathy. "Perhaps they made their way to land elsewhere. Let's hope so at any rate."

"I certainly do. May I ask you the same questions that you asked me? Who are you and where do you come from? That is, if it's any of my business."

She frowned slightly.

"I only meant that in kindness," she said in a tone of reproof. "Sometimes people in the South Seas don't care to tell who they are and your clothing didn't exactly suggest a private yacht. I'm Myra Collins and I live on this island with my father. But you must be tired and hungry and everything else. Forgive my thoughtlessness. I'll take you home and feed you and let Daddy thank you."

She started back along the path which Webster had broken through the jungle and he followed in her footsteps. They crossed the glade and followed a well defined path through the thick growth which brought them in a short distance to a large natural clearing in the center of which stood a large white house.

"Watch your step," she cautioned as they approached the clearing. "You'll find webs everywhere."

Webster stared in amazement. Every tree in the clearing and around its edge was festooned with giant webs. In many of there were spiders, varying in size from small ones only an inch or two across to giants fully eighteen inches in diameter. None of them approached in size the monster they had encountered in the jungle.

"Can't you clear them from the vicinity of the house?" he asked.

"We don't want to. Those webs are the reason why we are living here. My father is experimenting with them."

"What is he doing?"

"He plans to make them into clothing as a substitute for silk," she replied. "This dress I have on is made of spider webs. I wove the cloth myself on a hand loom."

Webster stared at the garment. He had taken it for silk of a high luster but when she spoke, he realized that it was made of some unfamiliar substance. Before he had time to comment on her statement a tall stooped figure appeared on the porch of the house and stared toward them.

"Where have you been, Myra?" the figure called. "And who is that with you?"

The girl ran ahead and threw her arms about the man who stooped and kissed her.

"Daddy," she said, "this is Mr. Webster of San Francisco. His father's yacht was wrecked last night and he was thrown ashore. Mr. Webster, this is my father, Dr. Collins."

Webster stepped forward with outstretched hand. Dr. Collins took it a trifle hesitantly.

"What was your yacht doing so far from the beaten track?" he asked in a tone that was not free from suspicion. Webster flushed at the tone.

"We were on a scientific expedition," he replied. "Our object was to collect specimens of the fauna and flora of these islands for study. My father loaned his yacht to a classmate of his, Dr. Torby, for the purpose. I came along for the trip."

"Aloysius Torby of Stanford?" asked Dr. Collins.

"Yes, sir."

The Doctor's face cleared like magic and he wrung Webster's hand heartily.

"You could have no better person than my old friend, Aloysius Torby, for sponsor," he said. "Is he with you?"

An Ominous Note

WEBSTER'S face clouded.

"I'm afraid, Doctor, that he is drowned," he said. "It was a bad night and he was not a good swimmer."

"That will be a great loss to biology," said the Doctor feelingly.

"Mr. Webster prevented another loss," interrupted Myra. "Let me tell you what he did for me."

In a few words she recounted her adventure with the spider and Webster's actions in rescuing her. Dr. Collins grasped Webster's hand again.

"That alone would make you welcome," he said feelingly. "She is my only chick. Forgive me for my first coldness to you. Strangers in the South Seas are not always desirable guests. You must come in and rest. You must be wearied by your labors."

"I don't want to intrude on your hospitality, Doctor. If you'll stake me to some grub and give me traveling directions, I'll be on my way."

"Nonsense!" cried the Doctor, "You will stay here as my guest. In the first place, I want you to and in the second place, you'll have to. You are on an island and your only connection with the outside world is a supply ship which calls twice a year. It called about a month ago, so you are doomed to be my guest for five months whether you desire it or not. I have needed more help than Myra has been able to give me and you are more than welcome until the ship comes again. By that time I hope to have you so interested in my work that you will stay on indefinitely."

"And now that that's settled," said Myra, "I'm going in and fix lunch. It's almost noon and Mr. Webster hasn't eaten all day. Yes, you may help if you wish to, Mr. Webster. As soon as I've changed into another dress which covers me, I'll be ready. We'll try to rig you out in some of Daddy's extra clothes after you have eaten."

Webster found that the events of the preceding twenty-four hours had taken a heavier toll from his strength than he had realized and after eating he was glad to follow Myra's suggestion and throw himself on a couch to rest. He dropped off to sleep in a moment and it was with an effort that he roused himself for supper. Dr. Collins' clothes proved entirely too small for him but Myra had rinsed out his clothing and patched it while he slept and he felt that he made a more presentable figure at supper than he had at lunch. Dr. Collins proved himself a perfect host and chatted genially on every subject except one. Any reference to his work or to the spiders he put aside.

"There is plenty of time in which to discuss that matter, Webster," he said. "In the morning I'll show you everything. Let's talk about other things tonight."

In a pause in the conversation, Webster became aware of a dull vibration in the air. He listened but he could no place it as anything familiar to him. It was a low throbbing regular note. He glanced at Myra and saw that her face was pale. Dr. Collins was paying no attention to the noise.

"What is that noise?" inquired Webster in an undertone.

"What? Oh, that drumming? That is the note of tom-toms, war drums," replied the Doctor. "There are canoes out on the water and Tonga, the Chief of these islands, is drumming his defiance and hostility to me."

Webster sprang to his feet.

"What arms have you?" he demanded. "If they mean business we had better get ready for them."

Dr. Collins waved the matter aside negligently.

"Tonga won't attack," he said. "In the first place, he is afraid to land here and in the second place, his warriors wouldn't follow him if he did. He attacked us when we first landed and twice since. The supply ship was here the first time and we handled him pretty roughly. The other times Myra and I were here alone but he got handled even rougher. We took no part in repulsing the attack but it broke down very suddenly without our interfering."

"What broke it up?"

"Did you notice that the trees around this glade are heavily draped with webs? Well, that was what did it. There are two paths to the shore, one leading to the wharf where the supply ship comes and one leading to the other side where you met Myra. We clear these paths out with flash tubes when we want to use them but when Tonga's warriors attacked, we neglected to clear a path for them. The last attack was about nine months ago and I think they lost a dozen men before they fled. I can show you the picked skeletons where they fell if you are interested. As far as Tonga's head hunters go, our position is impregnable."

Webster glanced at Myra and she smiled bravely although the worried look did not entirely leave her face.

"We're safe, I think," she said with an attempt at

lightness, "but the throbbing of those war drums always gives me the shivers."

"Nonsense, Myra!" laughed Dr. Collins. "Your nerves are running away with you. There isn't a warrior in Tonga's tribe with nerve enough to land here again. Let's talk of more pleasant subjects."

The evening passed quickly but long after they had retired for the night Webster could hear the dull throbbing rhythm of the drums and he tossed restlessly, wondering if the Doctor's confidence was justified. About midnight the sound died away and he slept until Myra's cheery call awakened him.

After breakfast Dr. Collins announced his intention of showing his visitor about the place. Myra declined to accompany them and the Doctor led the way into a room containing a series of tanks, a row of drying ovens capable of holding large reels, a spinning wheel and a hand loom.

"This where we treat the webs," explained the Doctor. "We gather them and bring them in here in bundles. As we get them they are sticky and ball together in lumps. We put the lumps into these tanks and treat them with dilute alkali and other chemicals which I have discovered are efficacious in removing the stickiness. When they can be readily broken up, we separate them, dry them and spin them into thread. Myra has woven some of the thread into cloth on this hand loom. It is unsatisfactory, but power is at a premium here. So far we have produced no very good cloth but that is a minor matter. Once the textile industry receives the raw material in proper shape for spinning and weaving, they will rapidly develop the proper machinery."

The Hand of the Master

"UNDOUBTEDLY," replied Webster, "but it seems to me, Doctor, that you are overlooking one very vital factor."

"And that is?"

"Your supply of raw material, of untreated spider webs."

"It is limitless. There are millions of spiders in every part of the world and if more are needed, they are easier to breed than silkworms. The worm dies when its cocoon is used but when the spider's web is used, it promptly builds another one. By selective breeding, undoubtedly spiders can be developed which will produce more web and better web."

"That is true but my point is a different one. Here you have a peculiar breed of spiders which produce a strand strong enough to work and use. Is the production of web from a small American or European spider large enough to make it a profitable thing to gather and treat the webs and would the strands of the webs be strong enough to spin into thread?"

"No. The ordinary spider web is worthless due to its lack of tensile strength but you had a taste of the strength of the web of my spiders yesterday. From some of the big webs I could make a hawser that would hold a battleship."

"Yes, but aren't these large spiders confined to this locality? I don't remember of ever hearing of them before."

"They are confined to this island at present, but they can be produced anywhere."

"Will they thrive in other localities and climates?"

"Anywhere that other spiders can thrive. When we came to this island, a little more than two years ago, the largest spider was the size of a pea. The giants you have seen, I have made. I can treat a common house spider and turn it into a giant in a few months."

"How on earth do you do it?"

"That is the crux of my work. Come into the next room."

The next room contained a bank of heavy storage batteries, a motor-generator set, a series of tubes resembling X-ray tubes and a bakelite box, the front of which was studded with control dials. From the box two leads ran to a tube, one end of which was a parabolic reflector at the focus of which was a coil. In the center of the tube a silvery button was set at an angle. Below the button was a violet colored lens which concentrated any rays reflected by the button into a crystal box set on an insulated table.

"Do you know anything about biology?" asked Dr. Collins. "No? Then I will have to begin an an elementary manner. In the body of any well-developed organism are a number of small bodies known as the ductless glands. The functions of many of them are unknown but certain of them have been closely studied and their functions determined. The thyroid gland, with which we are now concerned, is the one which controls the growth of the body."

"I have heard something of the sort."

"In man, the thyroid gland consists of two small maroon colored bodies connected by a bridge of tissue and lying one on either side of the windpipe. In some of the earlier primates the gland was part of the sexual apparatus and even in man it probably takes some obscure part in the act of reproduction. Under the microscope, the tissue of these glands is made up of a multitude of small nodules, imperfectly spherical in shape, lined with a layer of cells. The whole encloses a bit of jelly-like substance, rich in iodine and containing traces of arsenic.

"The undue stimulation of this gland produces abnormal growth while lack of activity is the cause of dwarfism. Undersized children have been helped by feeding them the dessicated thyroid of sheep. In order to increase the size of a living organism, it is only necessary to stimulate the thyroid gland to abnormal activity and the desired result follows. The giant spiders are ordinary tiny spiders whose thyroid glands I have operated on."

"The thyroid gland of a spider must be microscopic," protested Webster. "How can you fashion instruments delicate enough for such work?"

"I can't, I use rays. To be specific, I use the Collins ray, a variation of the ordinary infra-red ray. You have seen the results of the alpha phase of this ray when you used Myra's flash tube."

"It seemed to disintegrate the web," said Webster thoughtfully.

"The alpha phase has that effect. But when the beta rays are filtered through a lens stained with methyl violet, they have the property of stimulating either the thyroid gland or some unknown gland which in turn controls the thyroid. All of the ductless glands are somewhat interdependent on one another in their action.

The ray has no other effect except that it also stimulates the poison sacs of the spiders and makes the giant spider not only larger but more venomous than it was before treatment.

"To produce a giant spider I put a normal spider in this rock crystal box and turn the ray on. Twenty seconds of exposure is sufficient, although an exposure of half an hour does no harm and has no more effect than one of twenty seconds. A shorter exposure has no effect at all."

"Do they grow instantly?"

"No indeed, the ray works no miracles. The treated spider will grow in proportion to the amount of food available for a period of from two to four months and then growth ceases. A second stimulation has no effect."

"I saw spiders of all sizes from an inch to nearly two feet across. I suppose they represent different stages of growth?"

"No, they are all fully developed. I have worked on none for the last five months. There is one peculiarity of the ray which I am unable to explain. Some of the spiders do little more than double in size while others grow to gargantuan proportions. Two spiders from the same parents and apparently similar in every respect may produce the two extremes with the same treatment and feeding. The problem on which I am now working is the control of my ray to make it produce uniform and predictable results. When I can do that, I am ready to return to the world and remake civilization."

"Remake civilization?" Webster glanced sharply at the Doctor as he spoke.

"Certainly," went on Dr. Collins, his eyes gleaming. "Do you suppose that I have buried myself and Myra for years and spent my fortune in order to make a substitute for silk? Think of the possibilities that ray affords. Lambs could be treated and we could buy chops that weighed pounds. Think of what it would mean to farmers to raise their hogs to giant size in two months! It will make food plentiful enough that hunger would vanish from the world. Doubtless the principle can be extended to the plant kingdom and a tiny fraction of the world's population working short hours could feed the world."

CHAPTER III

A New Life

WEBSTER looked in awe at the Doctor. The magnitude of the vision almost overcame him as he looked at it through the inspired gaze of the scientist.

"Wonderful!" he cried. "You will be the benefactor of mankind!"

"Not of mankind, but of supermankind," cried the Doctor. "When the energy that is now devoted to producing food is turned into other channels, think of the advances that will be made in the arts and sciences! Poverty and crime will be things of the past and Man will come into his true inheritance. I have told you that I needed an assistant. Will you stay and help me?"

"With all my heart!" cried Webster as he grasped the Doctor's hand.

"I thank you," Dr. Collins said gravely. "Your reward will be great indeed if we succeed."

Over the Doctor's shoulder Webster caught a glimpse of Myra standing in the doorway and his heart gave a bound. If he succeeded, he felt that his reward might indeed be great, the greatest reward for which he could ask.

The island on which Webster found himself was a mile and a quarter long and three-quarters of a mile wide at its widest point. The clearing where the house stood occupied the central part of the island which was for the most part overgrown with lush tropical vegetation through which it required an effort to force a path. Two paths had been cleared from the house leading to the shore on either side of the island. The one by which Webster had approached the house was little used for the other ran to the wharf where the supply boat periodically docked with supplies for the Doctor and his daughter. A narrow deep water channel ran close to the shore on the windward side and the ship could come close to the shore to unload. A wide path led from the wharf to the house and while it was usually festooned and blocked with the webs of the giant spiders, a flash tube would readily open a path up which coolies would bring the food and other supplies for the next half year.

The ship and a radio receiver were the only contacts which the Doctor had with the world with the exception of a twenty-foot gasoline launch which was kept in a steel and concrete boat house on the wharf. The launch was not intended for regular use but represented a possible method of escape from the island should an emergency arise. Once a month the Doctor would go down to the boat house and start the motor and cruise around near the shore. After the first month this became a part of Webster's duties, usually with Myra accompanying him. They were careful never to go far for Tonga's island lay only a half mile to the east and his war canoes might be cruising in the vicinity at any time. The launch was well equipped to deal with an ordinary attack for it carried a one-pounder gun in the stern and a machine gun mounted in the bow. The guns and plenty of ammunition, together with a tank of water and food supplies for a week was all the launch carried, all other space being taken up by heavy steel drums of gasoline.

The drumming which Webster had heard on the night of his arrival proved to be a periodical affair. Three nights of each lunar month, on the nights when the moon was dark, the drumming sounded in the distance. No attempt was made by the head hunters to land and the nervousness which Webster had felt at first hearing the drums passed and he soon regarded them as little as did the Doctor.

Dr. Collins made full use of his new assistant Webster had little scientific training but he learned easily and under the tutelage of the Doctor he developed into a good laboratory technician. The first and foremost object of the experiments was to find a means of controlling the force which the Doctor had loosed so that he could set his apparatus to secure the exact stimulus needed to make the subject grow a predetermined amount. A careful recheck of his old work was made but neither the rate of growth nor the ultimate amount of it seemed to be affected by the length of exposure, provided the minimum of twenty seconds was used. A shorter exposure proved ineffectual

Minute variations in the adjustment of the apparatus had no effect and any radical change rendered it impotent.

It was Webster who, from the depths of his ignorance, suggested changing the focal length of the concentrating lens and bringing the subject closer to the source of the beta Collins ray. The change was made and a number of normal sized spiders and several of the giant spiders who had made only a small growth were treated and they sat back to await the results. Some change had evidently been effected for the spiders grew more rapidly than had the ones first treated. Although they received their thyroid stimulation a month after an earlier batch, they soon caught up with them and passed them. Whether this was merely a more rapid growth or the first increment of a larger total growth time alone would tell and the Doctor ceased work until this point could be determined.

A Sudden Attack

THE cessation of work was very welcome to Webster. He had grown deeply interested in the problem and was as impatient as the Doctor to learn what were the results of his suggested modification, but in the mean time, it was pleasant to loaf and especially with Myra. He had been figuratively bowled over by her slender beauty when he had first seen her and the three months which had passed had merely served to strengthen her fascination. Webster was in love.

His position was no wholly a pleasant one. He felt sure that Myra did not regard him with disfavor, but at the same time she gave not the slightest evidence that she looked on him other than as a friend and a playmate. He longed to ask the question which would tell him whether her indifference was a mask to a deeper feeling but he did not dare. He could not leave the island and the thought of watching her daily and knowing her to be unattainable was not one on which he cared to dwell. Better uncertainty than that.

Even were she to admit that she shared his feelings, Webster hesitated. Propinquity often works miracles in the matter of affection and he feared that on her return to the world she would find that what she had mistaken for love was only attraction caused by his sole availability. As soon as they left the island he would be free to ask her to share his life and the need for a speedy completion of her father's work seemed more than ever urgent. Myra herself advanced another need for speed. She turned to him one afternoon as they were sitting on the grass not far from the house.

"Bill," she said abruptly, "you like Daddy, don't you?"

"I think he is one of the finest characters and the greatest man I have ever met."

"I'm glad you like him, Bill, it makes it easier to ask you to help me. I am badly worried about him."

"In what way?"

"It has seemed to me that he has been growing weaker for the last three months. Haven't you noticed how any slight exertion tires him?"

Webster hesitated. He had noticed that Dr. Collins did not appear strong and had often urged him to rest, a suggestion which the Doctor invariably laughed at.

"I don't know, Myra. I haven't known him very long."

"I am sure of it and I want you to help me."

"I'll do anything you ask."

"When the supply ship comes the month after next, I want to take him home to the States and get him fixed up. Do you think we can do it?"

"I doubt it, Myra. Our experiments are coming along so well that I doubt whether he can be persuaded to leave them."

"We'll have to think up something. Bill, I'm scared to death about him. He is the only one I have in the world, you know."

She swayed toward him as she spoke and Webster bit his lips to keep from folding her in his arms. Her moment of weakness passed and she straightened up with a brave smile. As she did so she gave a scream and bounded forward. Webster scrambled to his feet and looked behind him. They were a good fifty yards from the edge of the clearing and the spiders had always kept to the trees but on the grass advancing toward them was one of the newly stimulated spiders, his body a good twelve inches across. Webster reached in his pocket for his flash tube and realized to his dismay that he had forgotten it. It was the first time he had ever seen one of the spiders on the ground in the open and he had not meant to go near a tree when he left the house.

"Your flash tube, Myra!" he cried.

"I haven't got it. Haven't you got one?"

For answer Webster looked around and picked up a bit of dead branch and hurled it at the spider. Instead of scampering away, the creature held its ground, saliva dripping from its working jaws, and then launched an attack. Webster ducked as the heavy body covered with coarse hair hurtled through the air and the arthropod flew over his head, a trailing leg laying open his cheek as it passed. The spider struck the ground beyond him and as he whirled about, it jumped again. Webster dodged the second attack and looked vainly for a weapon. There was nothing in sight and he stood his ground barehanded for he knew that flight was useless. He gave a hasty glance around for Myra and saw to his relief that she was running for the house.

Satisfied that she was safe, he turned his attention to his opponent just in time. The spider had evidently decided that leaps were useless and it scuttled over the ground toward Webster at full speed. Two of its powerful legs came up and gripped Webster's thigh and the slavering mouth drew near. Webster cut his hands cruelly on the barbed legs of the creature as he strove to force it away from him. The strength which lay in those legs amazed him. It was the first time he had come to hand grips with one of the larger spiders and his strength was barely sufficient to hold his enemy off from him.

The creature worked closer and doubled back its legs in spite of Webster's struggles. Another leg shot out and grasped him and he was drawn closer to those gaping jaws whose touch, he knew, meant death. Nearer he came until only inches separated his throat from the greedy jaws. He heard footsteps behind him and full into the face of the spider was thrust a nickeled tube and a yellow ray poured full into the hideous maw. The spider relaxed its hold and Webster tore himself free from it.

"Quick, Bill, he's coming again!"

At Myra's call he scrambled to his feet. Not daunted by the ray the spider resumed its advance, although more cautiously. Webster took the tube from Myra and stepped forward to meet it. Again the ray flashed out and once more the spider retreated.

"Run for the house, Myra!" he called. "I'll follow and hold this fellow at bay."

Besieged!

HE backed slowly followed by the hideous monster. Again and again he flashed his ray at it but with each attack the spider heeded the ray less. He had covered half the distance to the house when Myra's voice rang out behind him in horror.

"Run, Bill, run! Here comes another one!"

He glanced around and saw another of the monsters crossing the ground toward them. He rushed at his first enemy and thrust the tube almost into its mouth. The shock of the ray threw the spider back and Webster turned and ran for the house. Ahead of him Myra fled like a deer. A glance over his shoulder showed him that the spider was following slowly as if in pain but across the grass a dozen more were racing to the fray.

Webster's heart pounded as he approached the door. The nearest spider was as close to it as he was and was moving faster. Myra was already inside with her hand on the door ready to slam it behind him. He neglected his pursuer and concentrated on his new foe. The newcomer saw its prey about to escape and launched itself through the air in a twenty foot leap. Webster checked his advance long enough to let it pass in front of him and hurled his tube at it. His aim was good and the spider paused for a moment. The pause spelled safety for Webster for Myra slammed the door behind him just as the spider's body struck it with a thud.

"Thanks," he gasped as he helped her shoot the iron bar. "You pulled me out of a pretty tight hole."

"That makes us quits," she said with a tremulous laugh. "You did the same for me once."

Again she swayed toward him and in another moment she would have been in his arms but the voice of Dr. Collins cut in on them.

"What's the matter?" he asked.

"We were attacked by the spiders," explained Webster.

"Attacked? Nonsense! The spiders won't attack anything that isn't caught in their webs."

"That's what I thought but half a dozen of the new lot crossed the open and attacked us, Doctor, and they meant business. If Myra hadn't run to the house and brought me a flash tube, I would have been done for. For some reason the tube wasn't very effective."

"Was it freshly charged?"

"I charged them all yesterday."

"That's funny. Our batteries must be weak."

"The ray came out in good volume but it didn't stop the spiders."

"I don't understand it. Even a slight touch of the ray has always sent them scampering."

"Try them through a window. I fancy they are still there."

Dr. Collins approached one of the barred windows and swung open the sash. Outside were thirty or forty of the huge spiders ranging about the house and crawling over it. The Doctor shot the ray at the nearest one but the spider hesitated only a moment and then advanced full against the beam. One barbed leg reached in through the bars and Dr. Collins sent a ray full against it at a distance of a few inches. There was a curl of smoke and the leg dropped to the floor where it twitched futilely but the spider did not retreat. With an exclamation the Doctor thrust out his arm and sent ray full into the gaping mouth. For a moment he held it there and the spider retreated slowly and sullenly, writhing in torment. Another of the arthropods tried to grasp the Doctor's arm as he drew it in.

"Where are the guns?" asked Webster.

The Doctor hastened out of the room and came back in a few moments with his arms full of weapons. He handed Webster a rifle and took another himself. The two men opened fire on the besiegers without apparent effect. Webster picked out one of the largest of the attackers and fired seven shots into it before the spider turned and ran slowly and feebly away.

"Rifles don't seem to be much good," he commented. "Have you a shotgun?"

A charge of birdshot drove one of the attackers back but the left barrel of the weapon was empty.

"Give me some shells," he said.

"I don't believe there are any more," said the Doctor. "The supply ship forgot them on her last trip and I think you fired the last one. I think we have plenty of rifle cartridges."

"They aren't much good. See if you can find some shells."

The Doctor went in search of ammunition but returned with the news that he could find only four, enough to load each barrel of the two guns.

"We'd better save those for emergencies," said Webster as he thrust them into his pocket, "and it's a waste of time to shoot them with rifles. We have plenty of food in the house but how about water?"

"Enough to last for a week with care," reported Myra.

"And after that, drought," he commented. "Well, we are safe for the present. Let's hope they raise the siege before long."

Raising the siege was the last thing the spiders showed signs of doing. They prowled over the house and when they found no entrance they began spinning webs over the doors and windows and every other opening through which the odor of life could reach them. In an hour every opening was securely guarded by a web, in the center of which hung one of the grisly monsters, waiting patiently for its prey.

Further experiments with the flash tubes proved useless and Dr. Collins went into the laboratory and began to make some modifications in his hookup. Webster joined him and he explained that he meant to construct a monster tube and turn the force of his whole bank of batteries through it.

"It will blast a hole through eighteen inches of steel when I get it connected," he said. "I think it will destroy them quickly."

CHAPTER IV

Pursued!

HE was still at his task when dusk fell. The number of besiegers had not lessened but had increased enormously. From all sides came the monsters. Webster had never penetrated deeply into the jungle and he was astounded at the size of some of the newcomers. Some of them measured a full yard across and the webs they spun looked as if they were made of half inch rope.

The Doctor gave over his experiments at last and he and Webster joined Myra in the living room. A flash light sent out of the windows reflected back from hundreds of hungry eyes and they knew that the spiders were waiting—waiting—waiting for the fateful moment when something would drive their prey into their grasp.

"I'm frightened, Daddy," cried Myra. "What is going to happen to us?"

"I don't know, my dear," he said gently, "nor can I explain the attack. The spiders have always been timid and a touch of the ray scared them away."

"Perhaps their food supply has given out," said Webster suddenly. "We have increased the number greatly and have provided no increase of food."

"That is probably it," said the Doctor. "If we had foreseen this, it would have been a simple matter to have treated a few hundreds of flies and turned them loose."

"What is that?" interrupted Myra.

They listened. From the distance came the full boom of the war drums of Tonga but mixed with the throbbing came a bray of horns.

"Oh, it's just Tonga making his monthly demonstration," laughed Webster. "It doesn't mean anything."

"Daddy, what month is this?" demanded Myra.

"August."

"He has made an attack each August we have been here."

"So he has, but I don't think he will try it this year, my dear. I don't care much whether he does or not, in point of fact. The webs are over the paths and he wouldn't get far toward us. I think we can go to bed safely. The spiders can't get in and Tonga can't get near us, so we have nothing to worry about."

Webster lay awake for hours listening to the distant drumming and the bray of the horns. The horns were a new addition to Tonga's noise and it seemed to him that the drums had a deeper and more vibrant note than he had ever noticed before and it kept up longer. Always midnight had seen the end of the serenade but tonight it was still sounding at three o'clock. Webster dropped off to sleep and dreamed that the head hunters had landed and were attacking the house. He shot the first four of them but the rest broke in somehow and they seized Myra. She screamed for help as they carried her away and he awoke with her scream ringing in his ears. He rubbed his eyes and then bounded to his feet as a scream of agony came from a distance. He rushed into the living room at the same instant that Myra entered and they looked at one another with blanched faces.

"Where is Daddy?" she gasped.

"I'm here," cried the Doctor as he entered. "What is that screaming?"

With one accord they hastened to the window. Day had broken and the vistas of the clearing lay open before them. At the far edge were a band of black warriors armed with spears and shields. In one hand each warrior carried a flaming torch.

"They have burned their way through the webs," cried the Doctor. "Quick, Webster, the rifles!"

Webster grasped a rifle but as he did so a long drawn out scream of fear and agony came from the edge of the clearing. One of the warriors was down and on top of him was a hairy body. The other blacks danced around and hurled spears and shouted.

"Look!" cried Myra, "The spiders are attacking!"

Across the clearing raced their besiegers in long stealthy leaps. One after another they abandoned the webs they had constructed and advanced toward the edge of the glade where their nostrils told them that food awaited them. In a moment the house was deserted.

"Now is our chance!" cried Webster. "They have left us unguarded and we can make the boat. Bring flash tubes and the shotguns. Never mind anything else!"

His enthusiasm carried them with him and they rushed to the back door together. An enormous web was constructed over it and their united strength failed to break the strands which held it shut.

"A window then!" cried Webster.

He swung open one of the barred gratings and with his flash tube burned away the web which blocked it. Followed by Myra and the Doctor, he climbed out. They paused and glanced back across the clearing. Dozens of the warriors were down and a hideous feast was in progress. It was too far away for the details to be clear but it was evident that the spiders were spinning webs about their victims for some of them, enshrouded in webs, were being lifted into trees by the arachnids, to be finished off at leisure.

Toward the boat the trio raced, Webster in the rear. At the edge of the clearing they paused and while Myra kept watch to the rear, Webster and the Doctor began cutting a way through the webs which blocked the path. The Doctor was panting with loud gasps from the run and Webster looked at him anxiously.

For a time they made slow progress but as they got further from the clearing the webs became less thick and they made better time. Myra suddenly gave a cry of alarm.

"What is it, Myra?" asked Webster.

"They're coming after us!" she cried.

He ran back and followed the direction of her gaze. A dozen of the huge spiders were coming down the cleared trail after them.

"Smash through the webs some way, Doctor!" he cried. "They'll be on us in a minute."

Desperate Moments

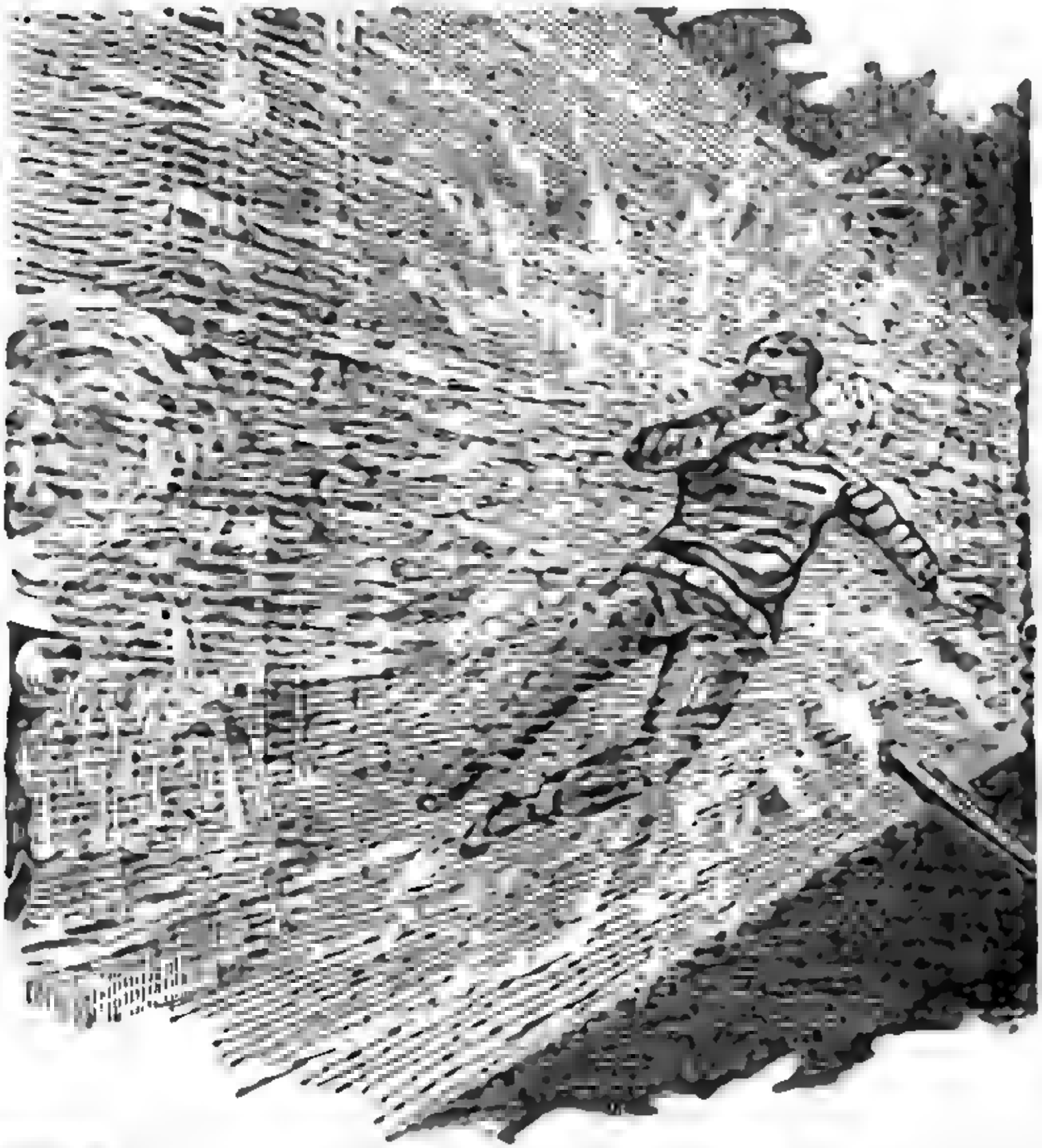
DR. COLLINS joined them and looked at the advancing spiders. He turned and handed his tube to Myra.

"There are only a half dozen webs blocking the way, Myra," he said. "You clear them while Webster and I hold these fellows back."

(*Conitnued on page* 365)

THE KING OF THE BLACK BOWL

By R. F. STARZL



RENEWING their acquaintance with the University of Chicago, Buck Holt and his [illegible] Darwin Ellis, strolled the side-walk outside of Stagg Field. Rounding the corner, they were just in time to see some swift drama.

Two armored trucks, bristling with machine guns, and with a light field gun mounted in a turret on top, came to a nicely determined halt beside an old man abstractedly ambling along in the early fall sunshine.

The armored doors opened and half a dozen men, wearing the uniform of the super-gangster, Felix Spumelli, filed out with military precision. Without difficulty they surrounded the surprised old man, and bore him, hardly resisting, to the rear car.

Up the street there was a shout. A policeman, car-

THE KING OF THE BLACK BOWL

VERY few good stories have been constructed on the new theories of Einstein with regard to time, space and matter. The reason is that the subjects are deep and complicated and not easy of explanation and a writer attempting a story would usually give up in disgust the effort to make it dramatic.

Mr. Starzl, however, has made a most thrilling story from an abstruse subject. How he did it we have no means of knowing except that it must have been a sheer flash of inspiration.

Suppose the *space* around us could be suspended and made into *nothingness*. Then we would find ourselves trapped by a surrounding wall of nothingness from which we could not escape. Suppose further that by some malevolent power an entire city or a nation in fact were covered and walled by such a black bowl of nothingness. Even though that wall be infinitesimally thin, it would resist all manner of penetration, nothing could go through it. Here then is the theme of this most unusual story—a story of dynamic adventure, heroism, greed and the lusting for power.

(Illustration by Miller)

There was a terrific crash—a sheet of internal flame as Ellis threw himself through the barrier of light.

rying a light sub-machine gun, took cover behind a culvert and swept the trucks with a hail of metal, trying for the slots. The turret gun barked sharply. There was a small fountain of dirt and broken concrete, and the officer lay asprawl, his blue coat staining darkly.

"Why, it's Professor Dawkelson!" Ellis shouted, his naturally high voice squeaky. His strong glasses accentuated his bulging eyes, and his straight, flax-colored

hair stood ludicrously on end. "Hey Buck, my old physics prof!"

But Buck had not waited to talk. Without hesitation he plunged straight at the uniformed knot with the professor at its center. A gun pivoted and sights swung into line, but the gun didn't fire. Inside the first car a small, dark man, with a tiny black mustache under flaring, aquiline nostrils, who was directing the affair through a microphone and amplifier, spoke the quiet words:

"Don't shoot. Let 'em mix!"

That man was Spumelli himself, who had come to direct this most important expedition in person. With keen interest he watched.

It was a beautiful scrimmage to delight any football fan's heart. Buck's two hundred pounds of sheer combativeness struck the disciplined co-ordination of the soldiers. Two of them hustled the professor into the rear car. Four met the athlete's charge. There was the impact of hard muscles on hard muscles, the crepitation of cracking ribs. It was a struggle of trained, efficient fighters. Buck was like a maddened bear, but Spumelli's small quick men were wild-cats, and it was a bear-cat fight. Pulled down at last by his snarling, biting opponents, Buck began using his knees and elbows systematically. There is a lot of stopping power in a well-placed elbow. He drove his knee into a groin and was gratified to hear a strangled curse and feel the lessening of the weight. With a vicious side-wise swing of his hard head he reached a jaw and another man went limp. Thumbs were digging at Buck's eye corners. He found the throat that went with the thumbs and squeezed blissfully. Things looked good.

R. F STARZL

Then more figures detached themselves from the truck. A tube about three feet long, with a bulb at the other end, was held near Buck's face. He seemed suddenly overcome with weakness. No longer resisting, he was saved from mayhem by the peremptory order of the master gangster.

They let him get to his unsteady feet and led him to Spumelli's car. A panel slid open, and Spumelli's keen face, lighted briefly by a white-toothed smile, was thrust out.

"Would have cost me fifteen bucks to see half as good as that from a grandstand," he applauded.

Buck stared at him belligerently. "Too yellow to come out and take a few yourself, eh?" he growled.

Spumelli, not offended, smiled. "And why," he asked, "should the real boss of Chicago mix in a brawl, even with the greatest half-back of the age?"

"Huh!" Buck grunted. "How come you cock-eyed crooks are getting so choosey? When I was a kid they used to throw the racketeers into the same bull-pen with plain hobos, and no social complaint heard. That's history."

"History," Spumelli smiled, "as some great man once said, is the bunk. This is 1935, and history has nothing to do with it. And speaking of racketeers, if you read the papers you ought to know there is now only one Racketeer, spelled with a cap R, and he's yours truly. You know I have public recognition for keeping the small fry out. I have my own police who are, as you might say, semi-official, and——"

"Yes, I know," the still truculent Buck interrupted. "You've got 'em buffaloed. With your crooked politicians, your murder rings, your knock-off gangs, you're getting by with a lot. Well——"

"You phrase it rather harshly. Of course I have my departments of politics, of finance, of defense, of—shall we say, refreshments, and so on. And now—this may interest your friend back of that wall, who is waiting to get a shot at me—I'm going to have a department of science with your Professor Dawkelson at the head. Sort of a hobby of mine—science, and I need his help. Seems rather unwilling now, judging by the noise, but he'll come—he'll come."

The panel slid shut. Buck, released, heard steel doors clang, motors jump into life. The field-gun barked again, and a section of a stone retaining wall flew into dust. But Darwin Ellis had seen the muzzle swinging his way and dropped down just in time, clutching the shot-gun he'd borrowed at a nearby drugstore during the fight. Buck found him crouching, still holding the gun over his head to break the fall of small stones. His studious face was scratched and bloody. His glasses had dropped off, revealing a murderous glare in his usually mild blue eyes.

"The *blank! Blank! Blank! Blank!*" he remarked unprintably.

A crowd was gathering. Co-eds and collegiate young men were hurrying from all directions. A clanging ambulance stopped at the other corner and made away with its grisly load. An armored police car forced its way through the mob and a gray-haired sergeant took notes in a book. "Got O'Halloran, eh?" there was helpless anger in his voice. "One of these days I'll bust loose and take a squad of volunteers after this Spumelli. Nothing I'd like better than to ram a grenade down his throat."

"Yeah?" queried a blasé reporter. "You and who else? I suppose you knew his real hang-out from the dummy ones?"

"Just an easy choice between suicide or losing your job," one of the other officers agreed cynically.

A City Isolated!

BUCK and his friend went back to their quarters. As they dressed their various injuries, they discussed the possible motives of the gang lord in kidnapping the professor.

"Ransom?"

"Hardly," Ellis negatived. "The old boy hasn't any

family, and he hasn't any money either—spends all he makes on his experiments. Of course the university might pay a ransom, but hardly anything that'd look like real money to Spumelli."

Buck suggested, "Spumelli said something about having him to direct his science department. D'you suppose he read something in the papers about the professor's new discovery?"

Ellis pondered. "You mean about Space being an actual form of matter, and his machine for splitting Space so that it is separated by an impenetrable wall of Nothing, really *nothing!*"

"Whatever it was. Seems queer to say that Space is Something, instead of Nothing. Kinda deep, that."

"Well, it may be deep, but it's true. How could Nothing have properties? And Einstein has shown that Space has properties. Now, you see——"

"Never mind! Never mind!" Buck said hastily. "You say the professor has a machine to separate adjacent sections of Space with thin walls of Nothing. Did you ever see the machine?"

"Yes. And I know Spumelli'll never get the secret. Dawkelson'll never tell."

"He'll tell, if he's hurt badly enough," was Buck's grim prediction.

Three weeks passed, during which the famous professor's kidnapping was successively relegated to page 2, to 6, to 18, to 36. And then it was entirely crowded out by news so astounding, so utterly incredible, that people could hardly believe the printed word, reinforced though it was by their own senses. On the second day, the *Daily News* said:

The commission of scientists and engineers appointed yesterday by Mayor Culworthy to investigate the bowl of unknown black material, which suddenly appeared at 6 o'clock yesterday morning, reported at noon today. The bowl is about five miles in height. It extends a mile out into Lake Michigan, follows the city limits approximately, and goes down into the ground to an unknown depth, for all tunnels, underground cables and the like have been cut off cleanly. Curiously enough, the material seems to be porous to water along established courses but not anywhere else, indicating that it is the artificial creation of an intelligence of high order. Thus sewerage and drinking water movements are not interfered with, but an attempt by a diver to walk out under the surface of the Chicago Sanitary and Ship canal met with utter failure, though the water flows freely. The air supply also seems unaffected.

All attempts to communicate with the outer world have failed. Trains, automobiles and airplanes are stopped by this shell, which is infinitely hard, infinitely inflexible. The finest diamond points are dulled. Rifle bullets and artillery shells are utterly unable to penetrate. Even a pure cathode stream at 150,000 miles a second, obtained from commercial Coolidge tubes, is reflected perfectly. The almost invincible gamma rays of radium are equally unable to penetrate in the least, and electroscopic tests have shown that even the wonderful cosmic rays, which can pass through 18 feet of lead, cannot penetrate Chicago's prison!

Naturally such a material will not permit the passage of etheric waves, and as a result Chicago has been totally cut off from radio communication. No sunlight can pass, and the city is in total darkness except for artificial illumination, which the generating plants within the city can supply. Yet the gravest consequences are certain as soon as the city's limited stores of food and fuel are exhausted.

The newspaper reports did not state the half of it. They did not report the sporadic riots, the waves of blind panic which swept this and that part of the city. An unheard of thing—this news suppression, and the best indication, perhaps, of the feeling of stealthy, unescapable menace which weighed on every mind

The really significant development came that evening. As thousands were hopefully tuning their radios, the local stations were blotted out by a powerful, nondirectional wave which blanketed everything. A well-modulated, cultured voice spoke, and it held an obvious note of elation:

"People of Chicago! I am King Spumelli—Felix the First. I hold that title by virtue of my strength, and there is none who can take it from me. I have learned the secrets of Space from Professor Dawkelson, and as you well know, there is nothing you can do about it. The prison which I have electrically thrown over you, will resist the efforts of the entire world to breach. Outside, the United States is wasting its heaviest artillery against it, and you didn't even know it. There's no use trying. Since Matter is only a manifestation of Space, no matter can pass through where Space is not. The shell which I have thrown over you displaces only as much Space as would be occupied by a thin bubble. Being Nothing, it has no thickness. Being Nothing, it might be infinitely thick, for all the difference it would make.

"But don't get excited. I will be a benevolent despot. I will not let you die. When you recognize my kingship I will give you sunlight. I will give you food. I will permit resumption of commerce. Eventually I will remove the barriers entirely. But don't forget—they will always be ready to put back. You will now hear my Minister of Science."

Came then the sad, weary voice of Professor Dawkelson:

"He's telling the truth," he said. The barest hesitation—"His Majesty tortured the secret out of me. I'm a prisoner till I die—soon—"

With tense, pale faces Holt and Ellis heard these words over their apartment radio.

"Just as I thought!" Ellis burst out savagely. "Spumelli has the secret of the space machine. We're caught."

"But don't you have any idea of how it's done?"

"Dawkelson didn't tell anybody. He seemed to realize the danger, and he was withholding the details until he could devise a counteracter. Of course he gave demonstrations. Spumelli evidently read about them—perhaps even saw one."

"Have to give Spumelli credit. He certainly does things in a big way," Holt said with grudging admiration. "This will quiet the people down, and in a week or two they'll all be hollering for a chance to kiss Spumelli's royal feet."

"They will not!"

Holt looked at his diminutive friend amusedly. "Aw, what do you care?" he asked. "This ain't your home town."

"Professor Dawkelson was my friend," Ellis said. "This King Spumelli's going to find out he's bitten off more than he can chew!"

"Well, we-e-ll! Dog-gone!" the big man said with real admiration. "You mean you're going to tackle him?"

Ellis nodded.

Holt looked at him thoughtfully. "Well," he sighed, "the good are supposed to die young, but it'll be *grand* exercise. When do we start—and how?"

CHAPTER II

A Daring Plan

THE next morning failed to dawn, as usual, and there was nothing to indicate that a new day had come. Artificial lights continued to burn. All business, except in foodstuffs, was practically at a standstill. People passed one another furtively, and a terrible feeling of depression lay over the city.

King Spumelli had sent out his army, rather tentatively at first, and met with nothing that could seriously be called resistance. His first act was to take over the police stations. His representatives, many still awkward in their new olive drab uniforms, which resembled somewhat the British army uniforms of 1914, appeared at the telephone exchanges. In like manner men who knew what they were about appeared suddenly at power houses and substations to take charge. The Federal Reserve bank, in the loop, was seized and the work of transferring funds from all financial institutions in the city to the massive vaults of that building was begun. Not until then was it realized what minute preparations Spumelli had made. His army consisted of over 10,000 men, all previously selected and trained, although none had known for what purpose. They had been helped to paying positions to maintain them until Spumelli's slowly maturing plans, which culminated in the professor's abduction, called for them.

There were some setbacks, after the surprise wore off a little. On the first day following the proclamation, about eighty members of the Chicago police force lost their lives in widely separated battles with the Spumelli troops, and according to the most reliable reports, about 700 civilians were killed. Several companies of Illinois National Guards, and a number of U. S. army men on detached duty lost their lives. A large proportion of the police promptly donned Spumelli's uniform and rendered effective service.

This was the situation confronting Holt and Ellis. They talked it over, sitting at a soda counter, as they consumed thin dispirited slices of cold apple pie.

"All we have to do," Buck summed it up, "is to find out, where in this city, which is about 25 miles from north to south and 14 miles from east to west, this here 'king' hangs out. The next thing is to bust through about six hundred guards, a few barrages of grenades and poison gas, and a row of tough eggs who won't get any breakfast till they bite it out of our necks. Beautifully simple!"

"If you're afraid," Ellis suggested coldly, "you don't have to come with me."

Buck grinned. "Oh, I'm just going with you to bring home the pieces."

"The plan," Ellis explained, "is to follow one of Spumelli's officers till we find out where he gets his orders. That will give us an indication of where Spumelli is."

"Yeah. Of course Spumelli couldn't use the phone, having all the exchanges!"

"Sure. Of course I don't expect our man to lead us direct to the 'king.' But sooner or later he'll go where there are others of his sort, and from their conversation we'll be able to find out where Spumelli is."

"I see," Buck said sarcastically. "All we do is walk into their district headquarters, when and if we find 'em, and sit down. They'll tell us all their secrets. Of course!"

The young science student looked at his friend gently, sorrowfully. "Buck," he murmured, "I've often suspected that you got famous because of the thickness of your skull rather than because of the contents thereof. No, I don't expect to get invited into their parlor, but as soon as we find out where said parlor is, I've got a little invention that may work if nothing else will."

As they stepped into State Street they almost collided with the smartly turned-out figure of a hurrying Spumelli colonel. He glared at them and his hand strayed to the pistol at his side.

"Oh, we beg your pardon!" Ellis exclaimed humbly.

Buck ejaculated, "Say—" but Ellis jabbed him viciously with his elbow.

"Say 'sir' when you speak to an officer of the King!" the colonel snapped.

"We beg the colonel's pardon, sir!" Ellis amended. The officer walked on.

"You sap!" Ellis hissed to Buck, "he's just the boy we want to follow and you try to pick a fight with him!"

"I'd like to wring his neck. And this in the United States!"

"Not exactly in the United States. Mathematically we might be considered infinitely removed from the United States, the very universe in fact. Almost as if we were in the fourth dimension—"

"Well, if we're going to follow him, let's follow!" Buck urged. "Those damned streets aren't any too well-lighted. What I'd give for a look at the sun!"

The colonel was a good walker. Fortunately for his shadows, State Street, usually the most crowded in Chicago, was practically deserted. Not more than a dozen or two pedestrians were in sight, though it was near noon. Street cars, running on schedule by order of Spumelli, were nearly empty, and the streets echoed hollowly to the roar of the Lake Street "El" as it thundered by on its futile rounds. The occasional glare of lights from show windows with their lifeless displays only added to the sense of desolation.

The colonel was a good walker. He made for the lift bridge which spans the Chicago river at this point. Not for two days had the bridge been opened, for the ships were all blockaded by that same mysterious black wall which, far out on the lake, barred all traffic.

A Bloody Encounter

ON the other side of the river, he turned into North Water Street, his trailers close behind him. The officer was stopped by a sentry. He gave the countersign, talked for a minute to the man. The soldier

looked back. Buck and Ellis slipped unobtrusively into a doorway.

"Did he notice us?"

"We'll soon know. Say your prayers."

The street was darker here, and there was a chance they had not been seen. In a few moments, however, they heard footsteps. Quickly they came nearer—the sound of hob-nailed boots on the pavement.

His bayoneted rifle poised, the soldier appeared before the doorway.

"To the guardhouse with youse birds!"

"Hardly!" Buck objected mildly. He seized the bayonet, turned it aside, so that the soldier's quick lunge carried it past him. Ellis jumped on the man's back.

"I'll handle him," Buck said. "Keep an eye out for the colonel."

The soldier was willing. The colonel had just said some disagreeable things to him and he was anxious to take it out on this stranger. Dropping his gun, he plunged into the rough-and-tumble battle enthusiastically. Hearty smacks of blows well-aimed echoed hollowly from the blank walls of warehouses. A particularly good one caught Buck on the chin.

"One, two, three—" the soldier counted, reaching for his handcuffs.

"Oh, hardly!" Buck objected again, scrambling to his feet. Losing no momentum whatever, he applied every ounce of his 200 pounds of gristle and bone to hurling himself, a human battering ram, at his adversary. Starting from this moving mass, backed by the tremendous muscles of his arm and shoulder, he flung his ten pound fist like a shell out of a cannon. The action was like the snap of a whip, muscles still flexed. At the very moment of impact, however, all his muscles hardened to steel. Irresistible as a locomotive ploughing into an egg-crate, he struck the soldier full in the chest. There was a dull boom, a muffled crackling, and the big uniformed figure crashed into the street, lay perfectly still.

"The colonel went into a storage warehouse a couple of blocks up, near the lake," Darwin Ellis announced, reappearing.

"Hit this fellow pretty hard. Hope I didn't kill him," Buck remarked with a tinge of regret, as he dragged his victim to the shadow of the doorway.

"What of it? He tried to stick you, didn't he?"

"Well, he isn't dead. Heart's beating, though pretty fluttery. He's a tough baby. About my size too."

"Say Buck! I've got an idea!"

"Shoot!"

"Put on this guy's uniform, walk up to district headquarters, if that's what it is, and pretend to make some kind of report. And while you're there, get the low-down on what we want."

"The officer of the guard will know I'm a fake."

"You don't have to pretend you're this bird. Just any soldier will do. You put on this uniform, walk up there, and say you've been attacked by a northside mob. Use your imagination. Say the guards at Ravenswood have been overpowered and that you just escaped. That'll start 'em buzzing. Maybe they'll call Spumelli and tell him. So keep your ears open."

"All right. I'll let this guy finish his nap in my sweater and pants. He ripped 'em up with his bayonet anyway."

"Yeah, and the black eye he gave you and the blood on his uniform will make your story look good."

The exchange made, Buck directed his friend to get back to their apartment, and Ellis began to regret his hasty suggestion. Buck insisted on making the attempt.

"Go on home and work on your patent idea. If I don't get the info, or don't come back, it's up to you."

They shook hands. Further words, just then, were superfluous.

Ellis went home, torturing himself with harrowing thoughts of what might be happening to his co-conspirator. Alone, he realized for the first time the presumptiveness of their undertaking. Without help of any kind, isolated from the outside world, in a city of over three million in which society had completely broken down to be replaced by the organization of an unscrupulous interloper with royal ambitions—two college boys stood alone. Those for whom they were fighting were divided, intimidated, discouraged. Their enemies were organized, powerful, of excellent morale. They were in control of the law, power and transportation, of finance, of life itself.

"If the world ever hears of us at all," he thought, "we're just a couple of rioters executed by the forces of law and order."

Three o'clock came. If successful, Buck might be back.

Four o'clock.

Five o'clock.

Six o'clock. Outside the eternal night of that black bowl, the sun would be getting ready to set.

At six-thirty there was a gentle knock on the door.

Buck staggered in, his face a mass of blood, his uniform torn, dirty, dripping soggily pink and gray.

"Get busy! Mop up in the hall," he gasped. "I snuck in. Nobody saw me. Don't want any embarrassing questions."

Ellis did as he was told. It wouldn't do to have any of the other tenants start talking. Fortunately, dull apathy was almost universal. No one seemed to care much what happened.

"Didn't make it," Buck reported a few minutes later, soaking his bruises in a tubful of hot water. "I went up there as you said. Well, this was just another warehouse—dead storage warehouse, such as you'll find dozens of. No windows for a couple of hundred feet up—all blank walls. Maybe a little office in front with a window and door, alongside the big steel doors used for the trucks. Inside there are a lot of fireproof rooms where you can store anything, cars, household goods, merchandise—anything you like. Big freight elevators, of course. Not much to see, otherwise.

"Well, I went up there. Couple of guards at the door. When they saw how I looked they let me in without argument. I explained to the corporal what I wanted. He conducted me to the roof. It's a sort of division office all right. A new shack, built right on top of the roof, where they can overlook most of the river and harbor. Just like an army office—pine tables, files, typewriters and such things. And some occasional high-priced furniture, looted out of the warehouse, I suppose."

An Amazing Story

"ANY way to get up on the roof besides the way you came?"

"Nope. Not a chance. This warehouse is quite a bit higher than the others, and anyway, stands all alone, next the river. You couldn't even see the shack from the street, in daylight. No, they're very snug up there in the dark. I give you credit for having a good hunch.

"Well, to get on with the story. I was just getting started with my yarn, and going over good too, when that colonel suddenly got up and said;

"'Hold him! He's a spy!'

"Three or four men grabbed me, but I didn't put up a battle just then. I said:

"'Colonel sir, if you don't believe me just call up the Ravenswood division yourself." I was sparring for time, of course, because I knew I was sunk the minute they really called.

"'You mean the Bowmanville division, don't you?' the colonel says sweetly.

"'Sure!' I agreed promptly. 'Beg pardon, yes sir. I meant Bowmanville, but it's so close to Ravenswood I got mixed.'

"'I like your nerve!' says the colonel, but he wasn't quite sure of himself, so he told the adjutant to phone. Everybody was interested in that call, and it gave me a chance to slip an automatic out of the nearest holster. I held it under the nose of the biggest man and he stepped right back. After that it was just a matter of a little knee nad elbow work, and a little shooting, to break away.

"I dashed out the door and down the short stairway to the elevator. There was a man on guard, but I clubbed him. Hardly had I got in when there came the pounding of feet on he steps. The worst of it was, I couldn't get the thing started. It was a different kind from the ones I'd seen.

"I saw they were going to get me so I jumped off and grabbed the counterweight cables. They were nice and greasy—very slippery, and I went down at a merry clip. It's no fun to side down two hundred feet or more like that.

"Pretty near the bottom there was a jerk and when I hit the counterweight it was coming up. They had started the elevator and were coming after me, bringing the counterweight up, me with it.

"Well, there was some room, about 12 inches between the reinforced concrete floor members which formed the counterweight channel. All I had to do was to stand straight and not breathe, and maybe I wouldn't get smashed. Up I went again, and down came those boys to meet me. They started shooting, but the light was poor. The worst I got was some cement chips in my face. They passed me between floors, so couldn't shoot me as they went past. I barely had time to hop to the roof of the car before they stopped, but they couldn't climb out, so I had 'em.

"They could shoot through the roof, though, and I lost no time getting to the guide-rails on the side. This was ticklish business, because if I slipped it was good night! And the rails were greasy. But I made it, slid down like a monkey on a pole, just managed to reach the power cable underneath, and slid.

"I slid fast, landing in the basement while they were still trying to locate me. But some of the other guards got hep to what was going on, and swarmed after me, popping at me with their automatics. I thought I was caught when they followed me into the basement, but in the nick of time I located an automatic sump pump, designed to return seepage to the river. There was a manhole where the pipe went out. It was a tight fit, but I made it, dropped a few feet into the river and swam for it."

"Say, I'll bet it was cold!"

"Cold is no name for it. I pretty nearly froze stiff. Well, you know the river flows IN from the lake, rather than out, like an ordinary river. I had to swim against the current. Everything was dark, of course, except for the bridge lights and so on. There was hardly a ripple of water. I thought I was jake when suddenly a searchlight opened up on the roof and swept the river. Back and forth it went, sometimes hardly missing me by a yard. I didn't dare swim fast for fear of stirring up ripples which would give me away.

"Well, pretty soon they did locate me. I knew what was next, and dived. Just in time too, because I could hear the phut-phut-phut of the bullets hitting the water. I swam until I thought my lungs'd burst. Finally, when I was so dizzy I couldn't swim any more I came up, grabbed a lungful of air and went down again, because they were still looking for me.

"Finally I reached one of the new concrete piers back of the breakwater. They seemed to think they'd got me, because they stopped searching. Just the same I was in a tough situation. I wouldn't dare to show up in the loop or anywhere in that vicinity because I'd be sure to be picked up. Finally I located a small rowboat, and rowed it all the way to Jackson park, where I filled it with sand and sank it. From there on it was just a sneak through dark streets and alleys. None of Spumelli's men saw me. Probably wouldn't be looking for me down here anyway."

Ellis stood ready with a coarse towel as his friend climbed out of the tub, and avoided the most extensively abraded surfaces.

"Quite a nick out of your shoulder," he remarked.

"It'll heal," Buck yawned. "Wish you'd get rid of that uniform, just in case this place is searched."

"I'll burn it in the garbage incinerator. You say there's no way to get near headquarters—no fire escape—no way to climb up from the outside?"

"Nope. And you couldn't look in with a spy-glass from some other building either. The windows are painted black on the inside. No information for us there, my laddie!"

Instead of being depressed, Ellis smiled. "Fine! An ideal test for my telephotaudion."

"What?"

"My telephotaudion. That secret shack on the roof will be an ideal test."

"In what way," Buck queried with gentle acidity, "do I get my neck broken *this* time?"

"It's perfectly safe," was the abstracted answer. "Get some sleep. I have to put the finishing touches on my apparatus."

CHAPTER III

An Important Conference

PEOPLE were getting used to the changeless night of Spumelli's kingdom. Clocks said it was eight o'clock, and the desolated streets were showing increasing activity. One had to eat, and wear clothes, and business was business

One would hardly have taken Buck and Ellis for anything else than office workers on the way to their jobs. If the earnest young man's brief case was rather bulky, it caused no comment. And his huge companion was obviously carrying a storage battery belonging to someone's car. They had the street-car to themselves, and there was no danger that their low-voiced conversation would be overheard.

"You've heard," Darwin explained, "of sending sound over light. Very simple. The sound is picked up by a microphone, converted into electrical impulses, amplified and sent into a loudspeaker magnet. But instead of the speaker diaphragm you use a mirror. Let a light fall on the mirror, which reflects a beam of light, and as it vibrates it will make the light beam wiggle. Pick up the wiggling light with a telephoto lens, and you have electrical impulses which can be turned into sound again."

"I see," Buck nodded drily. "So all we have to do is to get a microphone into division headquarters. Ha! Ha! Excuse me while I smile."

"Not exactly," the other persisted patiently. "You see, my invention is different. I don't use a microphone. I direct a very fine pencil of light through a special spot-light, at one of their windows. It doesn't make any difference if they are painted black on the inside. Now what happens?"

"All right. What happens?"

"Why, when anybody inside talks, the window vibrates, wiggling the light."

"Got to talk pretty loud to make the window rattle."

"Isn't necessary to make it rattle. Even an ordinary voice will make it vibrate slightly. That's enough for my purpose. I simply focus a special telescope on that spot, put my telephoto lens where the eye-piece would be, and presto, I pick up what is being said inside the room maybe half a mile away!"

Buck stared at him, and Darwin Ellis felt pleased, because it was usually he who paid homage, the other who received it.

Alighting from the car, they had a short walk to the new Commerce block. They consulted the directory in the lobby.

"Dr. Jones, on the Fourteenth."

"Dr. Jones hasn't come in yet," the operator said.

"We'll wait."

"Lucky break, that," Buck grinned when they were alone again. "Gives us an excuse for staying quite awhile."

"Jones is probably still hiding under the bed. We can go to the north fire-escape through this hall. Open and close the door fast, so the light won't attract attention."

Perched some 150 feet over the river, they looked for the secret roof headquarters, a difficult project indeed, until a momentarily opened door located it for them. Finding one of the dark-painted windows was not so easy, but presently a twinkling pin-point reflection rewarded their efforts.

After considerable experiment their instruments were in working order. The tiny beam of light used, hardly more than a thread, would never be noticed by a casual observer.

The headphones clamped to their ears, through rumbles, cracklings and other strange extraneous noises, they heard voices;

"—so I said to her, 'Girlie, you come up to my flat and won't need to worry about missing your train. Nobody's going to catch any trains out of here for a while. Ha. Well, she came. Seems to like it—"

A telephone bell rang. "Chicago Avenue station reports looting of delicatessen, sir," said a voice after a short colloquy.

"Send a platoon," instructed the first voice, and continued with its amatory account.

An hour later they still had no valuable information. Suddenly the listeners stiffened. A new call was coming in.

"Listen men!" a voice called. "This is important."

"Yes sir. Yes sir. Colonel Brookings, sir. I'll tell him, sir. He's to report at the Westloop headquarters at noon. For a conference with His Majesty? Yes sir. I'll transmit the order without fail."

"Something's going to happen, and soon," another voice volunteered. "You better hunt up the colonel right away." There was the sound of a door slamming, chairs scraping, and the swing of the conversation into other channels.

On their airy perch, the eavesdroppers dismantled their apparatus.

"The Westloop. You remember any such place?"

"Seems I heard of a new office building by that name. Don't believe it's finished, though"

They left the building and checked their equipment at another place. Once again unencumbered, Ellis approached a traffic officer, who was having a light job of it, for directions. The officer was tough and bulky, and not burdened with intelligence. He looked at them suspiciously for a moment.

"Whatcha want to know for?" he growled.

"Conference at noon," Ellis responded airily.

"Where's yer uniform?"

"Secret service," Holt snapped. "Hurry up, fella, unless you want yourself reported."

"Aw keep your shirt on. Sure I'll tell ye where the Westloop is, but it's damned funny ye don't know"

"Okay."

"It's across the river, west, beyant the Northwestern station. Loop's crowding out that way."

"Okay." They left the Spumelli officer puzzled.

It wasn't a long walk—about a mile. They recognized the towering pyramidal pile the moment they saw its ghostly gray against the black "sky." Patently unfinished, it stood aloof from the older, smaller buildings that shouldered it. Its summit was completely hidden in darkness; its shadowy base illuminated only casually.

Close Quarters

JUST an ordinary unfinished construction job. But at the main entrance, the only one not boarded up, loitered a group of men. By their clothes one would take them for tramps. By their alert bearing they were certainly not. These men never went very far away from something that was covered with a tarpaulin, beneath the lower edge of which a tripod's feet could be seen. A little farther back was another such object, suggesting a shrouded spider.

The first time they walked past the doorway no one said anything.

On the second trip back one of the men accosted them harshly:

"On your way, bozos. Make tracks!"

Thereupon Buck laid him low. Like oiled automatons the others sprang into position. The tarpaulins came off, revealing new, 1935 model .75 calibre machine guns. But that was simply routine, for quarters were too close for such fighting. There was the spiteful snapping of automatics, and Buck reeled, crashed to the floor, bringing down a couple of men with him.

Ellis was being forced to the floor by his antagonist. He saw Buck go down. With a jerk he dropped, dragging the other man over his head. The latter's own momentum was his undoing, rather than the science student's strength, and his head crashed against the marble wall of the lobby. Still dizzy, Ellis felt his fingers scrape a gun on the floor. He snatched it, emptied it wildly at the men who were coming for him, and dashed up a long corridor. A single bulb under the doorway arch furnished the only light there was, which was fortunate for him, for while the corridor bellowed and echoed with the discharges of the machine guns and the projectiles pinged everywhere, Ellis lay squeezed in an unfinished electrical conduit trench along one wall. His enemies were business men, accustomed to killing in a business-like way, and they didn't believe in charging into the darkness after a man who might still be alive and armed.

But now they felt sure that the guns had done the job, and with a searchlight before them, they advanced. Ellis could see the shadows of no less than six men creep along the floor. Desperately he inched along a little, and miraculously, so it seemed, he came to an opening where the conduit entered the wall. He squeezed in.

After a foot or two the opening constricted, and he was stuck, with the lower portion of his body still out. The guards were now so close that he could hear their voices, as they cautiously swept their lights here and there. In another moment he must surely be discovered.

Something heavy came down on his leg. There was a startled squawk. "Here he is!" a voice cried. "Down that slot!"

There was an eager scrambling. With superhuman effort Ellis caught a rough projection, pulled himself till his bones cracked, and got loose. The narrow place was behind him. He was pursued by curses and bullets, but the trap which had so nearly been fatal now aided him. None of the missiles got around it.

He was now in total darkness, crawling blindly. The conduit was evidently designed for a multitude of uses, for there were cables, pipes and fittings galore. At places it broadened out until travel was quite comfortable. Again it constricted to passages so narrow that he could hardly squeeze through. Always he was obsessed by the fear that he might become hopelessly stuck.

After interminable struggles through blackness he came to a place where the conduit rose straight up. Cast into the concrete there were iron rungs. Aside from the physical effort there was no difficulty in climbing.

He counted the steps, which were about a foot apart. This gave him an idea of his height above the street level. He explored numerous branches of the conduit, whenever they were large enough to admit his body. Most of the time they branched still further, stopping him. Occasionally, however, a conduit opened on switch-board panels in unfinished rooms. Cautiously exploring these, Ellis always found them deserted, the doors locked. From the windows he could obtain a magnificent view of the darkened city under the velvet black, starless firmament. But he never lingered long, for he could hear the scurrying of feet and the slamming of doors. This bold invasion of his stronghold had evidently not been taken into Spumelli's reckoning.

Ellis opened windows whenever he could. Should his enemies try to gas him out of the conduit system, a draft of air would be a great help.

Continuing the ascent, he came to the 400th rung. He was soaking with sweat, for the conduit was hot as well as narrow. The rough metal covering of the heavy cables chafed his back and tore his clothing. He had abandoned his coat and vest.

At the 624th rung he came to another transverse conduit. They had become rare, and he decided to crawl into that one and lie low for a while. The passage was difficult, and had evidently been hastily enlarged. The jagged edges of broken concrete gouged into his body, scratched his skin. Extremely heavy cables, much heavier than any used in the other transverse conduits, were apparently the reason for the enlargement. Ellis wished for a light to examine those cables better. He could tell from their tremendous size that they were capable of carrying tremendous power.

Suddenly he came to a break in the wall, which had been rudely smashed open. The hole had been closed again with boards, through which the cables passed. Peering through a crack, Ellis saw Professor Dawkelson. He was sitting at a flat-topped desk, his white head bowed on his arms.

The large room was filled with electrical apparatus similar to what the professor had used in his laboratory, but built on an enormous scale. Twinned vacuum tubes fifteen feet long and three feet in diameter, their hot cathodes as large as railroad springs, their anodes funnels of polished platinum; inductances like giant serpents; strange semi-circular metal sponges seven feet or more in diameter; and dominating everything, near the center of the room, a spinning column of metal, on insulated bearings, which, Ellis knew, must extend through the roof and end in a ball at the very top of the tower, hidden by the never-ending darkness,

sending out powerful ether waves to generate that strange "node" colloquially known as "the King's Bowl." There was a faint hum, the pungent odor of ozone, and a draft of unpleasant dry heat through the cracks in the board shield.

"Hi, Professor!"

The old man started, raised his haggard face, suddenly agleam with wild hope.

"Yes!" he answered in a low voice, looking for the source of the sound.

"It's me—Ellis. Is there any way I can get in?"

"How did you get here? I never thought a man could crawl through that." He hurriedly took a hammer out of a tool chest, climbed on a high stool to loosen some of the boards.

"Prof!" Ellis exclaimed excitedly, dusting his clothes, "why not smash some of those things? If we can lift the bowl the whole U. S. army will be here in a few minutes."

The Death Trap

DAWKELSON pointed to a line of fine light beams projecting from a slot in the wall. The beams formed a screen which cut them off from the three-quarters of the room where the nodal apparatus was.

"Ah—a death ray?"

"Not exactly. A life ray. Each one of those beams falls on a photo-electric cell on the opposite wall. As long as the light is not interrupted a relay holds open a switch. But watch!"

Seizing a long board, he gingerly placed the end of it into the path of one of the light pencils. Instantly a blue flame leaped from the floor to the ceiling, a living sheet of electricity, swaying, curling, reaching out hungry fingers for the two men. The board, withdrawn, was charged and smoking. At once the electrical barrage stopped.

"Very neat, that!" Ellis commented, drawing a deep breath.

"Nothing can cross that line, and live, the professor said despondently.

"But why does he keep you here?"

"Just to watch. If anything goes wrong I'm to call Spumelli. He allows no one to touch the apparatus but himself."

"You say he comes *alone?*"

"Ye-es." Dawkelson viewed his pupil's slight frame "But the two of us can't handle him. He's like a tiger."

"Never mind. Does he turn off the barrage?"

"Just before he comes in. But he's in immediately after that. No chance to get over there. I tried it once. See this bruise on my temple?"

Ellis selected a three-foot length of two-by-four from the odds and ends in the corner.

"Just call the 'king' and tell him your outfit is acting up. I'll stand beside the door, and when he comes in, why——" His blue eyes gloated back of their strong lenses.

Dawkelson spoke into the 'phone. "I want to speak to His Majesty."

After a moment there was the rattle of a voice. "Your Majesty, this is Dawkelson. We're developing a bad corona on the fifteenth negative terminal. Air's strongly ionized. Liable to have a spill-over any minute."

"Be right over!" came the answer.

"Stand over there in front of the door," Ellis directed nervously, "so he'll have something to draw his attention."

After a short wait the door opened. Spumelli stood just outside, amused.

"So you really rated me so low in the scale of intelligence!" he said with mock reproach. "To think I'd fall for such a simple trap! Really, I'm surprised you didn't suspect I'd have a mike hidden in the room, and a televisor lens too. This is a mighty important room, you know. Really hurts me to have you expect me to be so careless!"

"And now, young man," he continued, speaking around the corner of the door, "I'll forego the pleasure of being the first to walk through this door in favor of one of the boys. They don't mind taking a good whack for the chance to get in a few of their own." His henchmen, standing back of him, grinned at that, took firm grips.

Spumelli's bantering tone suddenly became venomous, as he fixed his gaze on the professor again.

"As for you! You know the penalty of treachery. Death! Not an easy death. It will be a spectacular death, an object lesson to the kingdom. At 'em, men!"

He stepped aside, and a half dozen of his guards, bats over their heads, poured in. Ellis' first blow landed on an upraised bat; then his club was knocked from his hands. Blocking the way to the door, four men advanced slowly. Ellis, helpless now, retreated.

"Stop!" the professor cried. "You're close to the deadline!" The two guards who held him looked on with interest.

"About six feet to go," Spumelli remarked, cheerily lighting a cigarette. "I didn't turn off the juice, so you'd better take the beating."

A guard, tentatively swinging his bat, forced Ellis back another foot. Then another struck him, not very hard, on the shoulder. They were brutish but canny, wanting to prolong the sport.

The butt of a bat prodded his face, cutting a gash from which the slow blood trickled. Involuntarily Ellis stepped back another foot toward the line of death. But as he dodged some blows, took others, he tried desperately to seize on an idea that lingered tantalizingly on the border of his conscience. It had something to do with that relay. Another blow dazed him. His head was a mass of racking pain. He was in no condition to think that problem out, so with a wild whoop he threw himself through the barrier of light—threw himself sideways as a high-jumper does.

There was a terrific crash—a sheet of infernal, hissing flame curtained the room from top to bottom, and Ellis rolled on the floor on the other side, uninjured except for a slight burn. Although the action of the relay was quick, it was not instantaneous. A brief fraction of a second intervened before the automatic switches could function. That infinitesimal respite was enough for the slim young man's body, sidewise-flung, to pass. One

of the guards, who had instinctively jumped after him lay on the floor, blood running from his nose and ears, skin cyanotic.

Spumelli leaped outside, threw the switch. "All right, men, get him!"

But Ellis was on his feet. Close at hand was an instrument table with a heavy cast-iron base. He pulled the table top off its bracket and seized the stem, holding the heavy base over his head.

"Shoot, or move one step further, and this'll drop on the cathode tube!" he cried.

"Get him!" Spumelli's voice was harsh, tinged with fear. "Don't let him smash that tube!"

Another of the guards, carelessly laying a hand on one of the great helices, fell dead. The other two, keeping carefully in the clear, approached determinately. Their problem was to knock this young man down and at the same time prevent the heavy cast-iron from falling on the glass.

CHAPTER IV

Desperate Moments

THE blow fell. Blood welling out and coagulating on his flaxen hair, Ellis sank to the floor, unconscious. One of the guards grabbed for the standard, missed it. It struck the great tube with a clank like a maul on a steel boiler. This was followed instantly by a hollow boom, a shattering of glass. A fuse exploded, and there was silence. The undamaged twin tube changed its glow from pale violet to brilliant lavender as it assumed the full load, and the cathode brightened to a brilliant white. Ellis' unconscious form was carried out, as were the bodies of the two dead guards.

Spumelli, really shaken, carefully locked the door, and harshly directed that his prisoners be locked in a nearby vacant room. At that moment the elevator clanged, and a soldier dashed out.

"Riot!" he gasped. "Some crazy loon's shooting out the lights below. He's raising hell!" The man's black eye testified to the truth of that statement.

"Why didn't you place him under arrest?" Spumelli snapped.

"We thought he was dead, but it seems the bullet just stunned him. We let him lay and most of us went after his pal, when pretty soon——"

Spumelli interrupted. "Is this the man you were chasing?" He pointed to Ellis, who was beginning to stir. The soldier stared.

"I believe it is, sir, but how——"

"Never mind. I think I know the gentleman who's raising the disturbance. Where is he now?"

"Why, he's got a machine gun in one of the corridor shops."

"One of *our* machine guns?"

"Why—you see—when he came to he knocked out the guards we left and turned one of the guns on us, smashing the other. He got a couple of our men, and——"

Spumelli struck him in the face, and he fell bleeding. "Sotti!" the "king" cried angrily. An aide came running.

"Arm every man. Guard this floor with your life. Send a detail down to guard the power tunnel. Close the conduits and gas them. Send an emergency general call for reinforcements."

Turning to his captives, he ordered them brought to the elevator, and so to the ground floor where a desultory battle was going on. Although Buck Holt could not risk going into the corridor for a clean sweep, he was splashing his bullets on the concrete wall and getting good distribution. Spumelli's forces were returning the fire from various points of vantage with new guns.

Ellis was able to walk now, though he was wobbly. Spumelli, in the comparative safety of the elevator shaft, prodded them both with his automatic.

"Just take a walk, boys. We'll let Mr. Holt execute the royal decree. Walk now!" He forced them out, straight toward the stream of death that came, almost uninterrupted, from the doorway some thirty yards toward the front.

"Duck!" Ellis whispered. They hugged the wall, crawling close to the floor. Once they had to push aside a sticky, huddled form. Buck, still oblivious to their presence, methodically fed hot death into the blackness.

Outside, the dark street became light—the prompt response to Spumelli's call. Keen fighting men, skidding to a stop, had taken in the situation at once. Armored cars belched flames and Buck, moving to meet this new emergency, paused for a moment to readjust himself. Scuttling like crabs, the fugitives crossed his erstwhile line of fire. The corridor was being thoroughly pulverized, and friend and foe retreated from the blast. But the barrage was only preliminary. After a few seconds a dozen men, carrying light rapid-firers, advanced in a thin line. Now the moment in which the three in the shop were discovered would mark their end. Fortunately for them, there was almost no light save for the gun flashes.

Buck, who had inserted another long cartridge belt, nodded casually to his strangely appearing friends, after a short, strained appraisal, muzzle steady.

"Almost burned you down." His lips formed the words, though he could not be heard in that tumult. His features were eery in the fantastic high-lights and shadows, the brief red flashes.

Ellis motioned to a door that led to a small rest room. Keeping close to the floor, they crawled in there, found another door, the entrance to the next shop. The shooting had ceased. In a narrow, pitch-dark corridor, they rested.

Respite was very short. Strong lights appeared in the rooms they had just left, and again they were forced to run. Buck had to carry his gun and half support the old man too. A few times the searchers sent streams of metal in their direction, in their methodical mopping-up, and once they accompanied this with the strong beam of a search-light. Immediately a cry went up.

Gasping, stumbling into one another in the alternating glare and darkness, cut by chips of splattering metal, they ran. Just as the gunmen were getting them located they spied a dark patch to their left. Plunging

into this, they almost tumbled down-stairs into the basement. It was a stairway. In the darkness and unfamiliar surroundings, they blundered on. Above them they heard pounding feet, and lights began to throw long, grotesque shadows. Acrid powder fumes drifted down.

"Find a window into the alley, you!" Buck gasped. He took refuge behind a pillar and let fly at the first man to show his legs. That one fell. The others withdrew, but the respite was only momentary. Already an armor-plate shield was being lowered. The bullets rang on the shield with a deafening clamor.

A draft of cool air struck Buck's neck, and he ran. He scrambled over a pile of boxes to the broken window. The professor was already outside and Ellis was calling anxiously. Buck let go a few more shots, but that was a mistake, because it betrayed his exact location. A veritable storm of bullets followed, and Ellis got one in the arm.

The whole neighborhood was in an uproar. The fugitives started for the street but halted immediately, for it was thronged with soldiers, some of whom plunged into the shadows to investigate the shooting. Running the other way, the fugitives made for a quieter street in the next block. Behind them there was shooting, vehement cursing. Mistaking each other's identity the pursuers from the basement and the men from the street had fired on one another.

From there on the flight became panic. They ran in the general direction of the river, not knowing their surroundings, blundering through viaducts, alleys, over tracks, long, deserted freight platforms, impeded by the professor's age and the weakening effect of Ellis' wound. Lights flashed and bullets rained. As they passed side streets they saw the swiftly coursing trucks as they dashed around and around in pursuit. They came at last to a tiny park, climbed a low iron fence, and found themselves at the river's edge.

"Can't stop here!" Buck gasped. They turned to the north, but only 150 yards upstream they saw lights and questing figures. A glance was enough to show that they were cut off to the south, and back of them, moving more cautiously, other groups were closing in on them.

"We'll have to swim!"

"I can't!" the professor groaned. "Go ahead, though."

"My arm!" Ellis held his hand over the wound. "Leave the gun with me. I'll hold 'em a little while. You get over and maybe you can try again."

"I dropped it in the park. Out of ammunition. Hey! Hey!" The crackling of bullets over their heads sent them in quick retreat to the water's edge. Buck stumbled, and with a half-suppressed cry of gladness fumbled over the thing that had tripped him.

"A waterlogged timber! But it floats. Get on here quick." They clung to this forlorn hope, pushed out into the chill, murky river. Paddling with hands and feet, they slowly put distance between themselves and the darker loom of the shore. Spumelli's men were coming up to the park now, prudently lashing everything with bullets. The air throbbed with the *tuk-tuk-tuk* of the heavy quick-firers, crackled with the bullets flying overhead. They had not yet been discovered, and struggled desperately to get into midstream where the current would carry them.

They were still within 100 feet of the shore when the search-lights found them. And all the firing they had endured before was as nothing to the murderous stream which swept over them now. The three men hung in the water, their legs down, allowing themselves bare handholds on the huge timber, which had to be kept broadside to the shore. The timber protected their heads, and because it rode so low, the upper parts of their bodies, which might have been reached by the bullets, but Ellis and the professor showed evidence of fast waning strength.

Peering around the end of the timber, Buck saw a boat leaving the shore a hundred yards up the river. Several men sat in it, the lights reflecting strongly from their weapons.

"Well, old-timer, good-bye!" he said quietly.

"So they're coming!" Ellis murmured. "So long!"

And then all three of them closed their eyes to a sudden, intolerable glare of light. To their darkness-accustomed eyes it was a light so intense, so unbearable, that it was a positive pain. It flashed from each wave, from each towering building that seemed to leap out of the darkness. It seemed to envelop the soaring pillar of the Westloop building in lambent flames. Squinting, they saw that superb structure mushroom, fly out in a glittering cloud, settle slowly and lingeringly. But the light, the all-enveloping light, continued.

"Oh the sun—the beautiful sun!" Sobbing hysterically, the professor was dragging himself on to the drift-wood, which, caught in a cross-current, was approaching the other shore.

"The Black Bowl is gone!" Ellis exclaimed with renewed strength. "The single cathode tube couldn't carry the load. When the field collapsed it wrecked the building. The troops'll be coming in from all sides."

In fact, a moment later a squadron of hydroplanes came in from the east. Two of them left formation and dropped to the river, throwing up thin sheets of water

"Ahoy!" a snappy-looking man in uniform called. "Want help?"

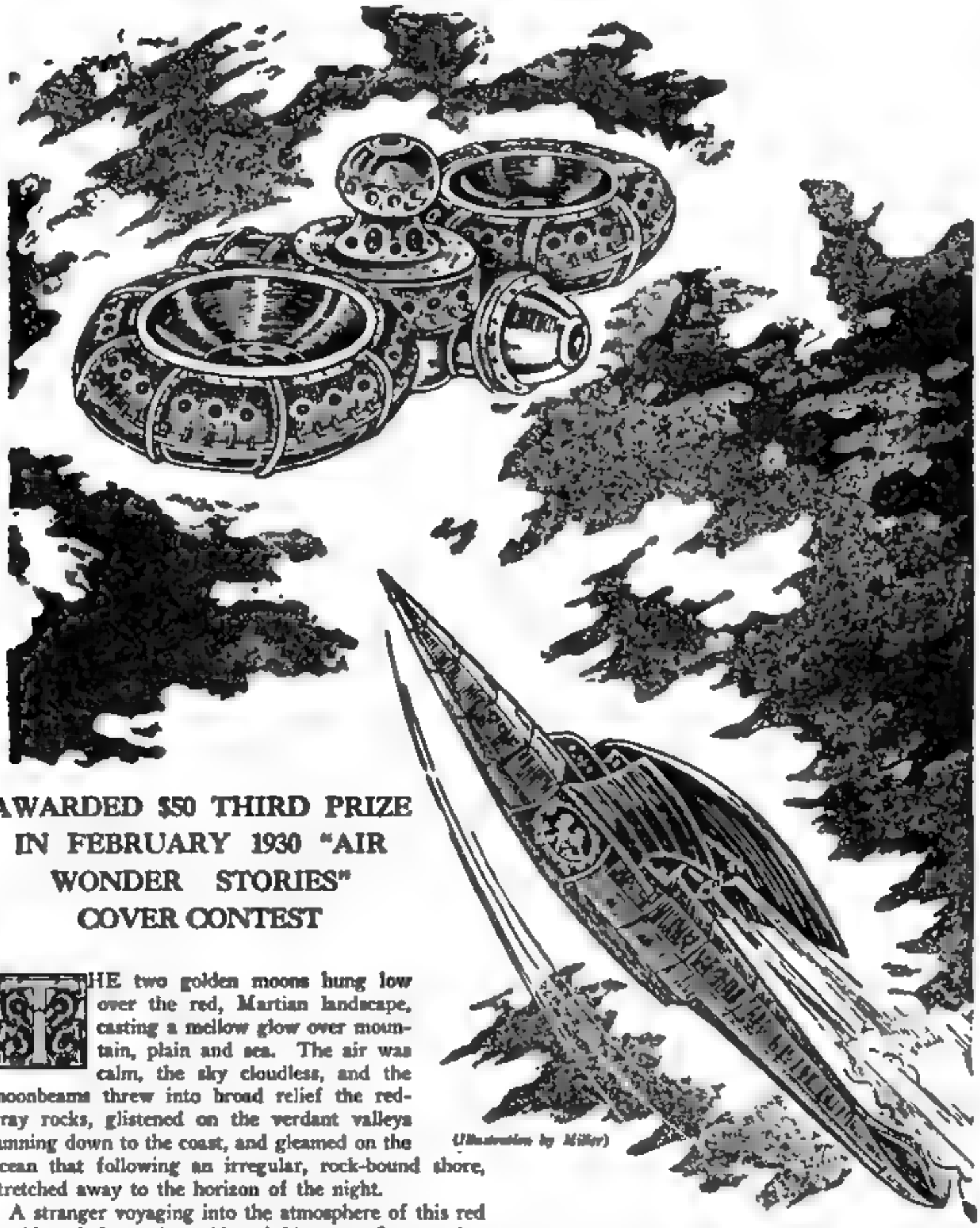
"You're cock-eyed right we want help!" Buck replied. "Did you think we're here to take a bath?"

THE END.

NEXT MONTH
A new and marvelous "dimension-traveling" story
By FRANCIS FLAGG
"The Lizard Men of Buh-Lo"

A RESCUE IN SPACE

By LOWELL HOWARD MORROW
5811 Hough Avenue, Cleveland, Ohio



(Illustration by Miller)

Then she turned upward and rushed with full speed straight as an arrow toward one of the green eyes

AWARDED $50 THIRD PRIZE IN FEBRUARY 1930 "AIR WONDER STORIES" COVER CONTEST

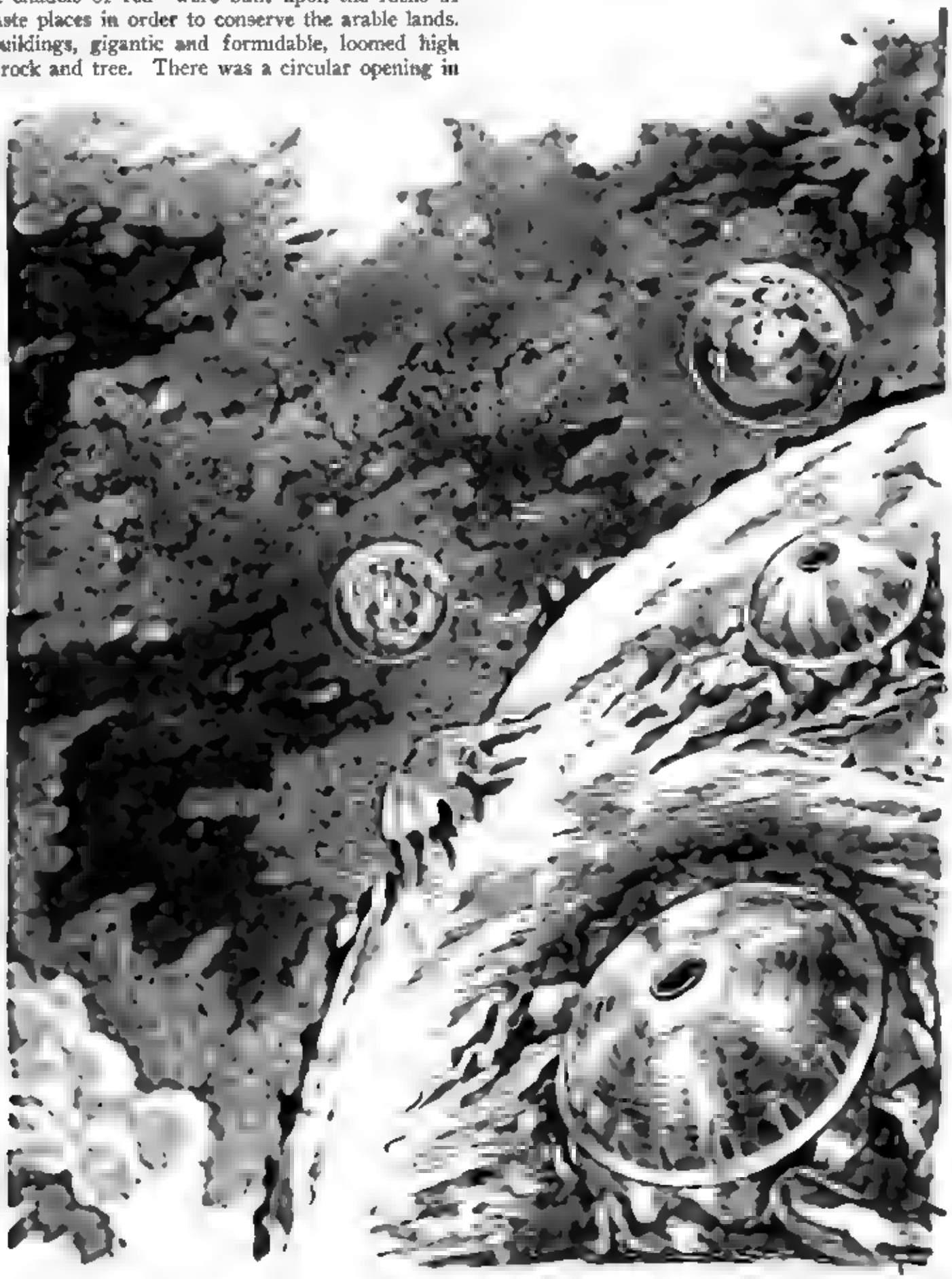
THE two golden moons hung low over the red, Martian landscape, casting a mellow glow over mountain, plain and sea. The air was calm, the sky cloudless, and the moonbeams threw into broad relief the red-gray rocks, glistened on the verdant valleys running down to the coast, and gleamed on the ocean that following an irregular, rock-bound shore, stretched away to the horizon of the night.

A stranger voyaging into the atmosphere of this red world and from the cabin of his space-flyer gazing down at the rock-strewn plains, might have imagined himself viewing a dead world. League upon league the rugged, torn, upflung mountains—grim reminders

of the volcanic action that had ejected them from a fiery womb—lay silent and dumb in the ghostly light. Here and there only remnants of a vegetable life survived in the forests of the valleys terminating at the coast. But sailing on above forests and green fields he would have seen such animal life as horses and cattle and others which have become the servants of man on earth. Then as he neared the sea he would have been startled and impressed by finding the works of man.

These structures of man's hands—great conical-shaped citadels of red—were built upon the rocks of the waste places in order to conserve the arable lands. The buildings, gigantic and formidable, loomed high above rock and tree. There was a circular opening in the center of each dome, and near the base, which was buttressed with rough-hewn rocks, were large, hooded port-holes commanding every point of the compass. As far as the eye could reach over forest and plain and out over the ocean itself, no other evidences of man's handiwork could be seen. The great citadels themselves displayed no lights and showed no signs of life. Sombre, majestic and silent they reared their grim forms toward the sky, mysterious sentinels on the outposts of life.

For life there was beneath those great, red domes—



the hectic, feverish, surging life of man. Deep down under rock and ground and sea, the Martians had burrowed and excavated their way, had built great cities of steel and stone and glass with wide streets flanked by beautiful buildings. It was all electrically equipped and controlled by the latest inventions of a super-scientific civilization. Here the industrial, governmental and domestic life of Mars had its being.

Many considerations had constituted the Martians' reason for life underground. Theirs was a dying world. For thousands of years the fertile lands had dwindled; the lakes and seas had shrunk and the reservoirs which fed the irrigation canals had either frozen or been burned up in the scorching rays of the sun. Fertile soil was too precious to be encumbered by the cities of man, and the rocky wastes were desolate and cold.

For generations also other worlds had made war on Mars, for the planet was rich in minerals and precious stones. Its armies had been beaten in the field, air fleet after air fleet destroyed and cities razed until the people, despite their great civilization and intelligence and marvelous inventions, had been obliged to seek a subterranean home. Here far beyond the power of bomb or ray to harm them, they lived in comparative security, emerging through their electric forts only to carry on their agricultural work or to repel a foe. For even here they were sometimes forced to fight an enemy who came to them across the cold, dark gulf of space.

MR. MORROW is probably well-known to the former readers of AIR WONDER STORIES *as a writer of stirring fiction. In awarding the third prize, we looked more to the fictional elements of the stories than to their scientific completeness. This does not mean that the present story is inaccurate, for it is not that. But its excellence is particularly in the story, and as a story it was picked as a winner to be read and enjoyed.*

As our readers can perceive, we have picked for the prize winners of the February 1930 AIR WONDER STORIES *Cover Contest not only stories that were excellent, but also those which represented different types. The first prize winner was chiefly the story of a race attempting to save itself from extinction; the second dealt with an interplanetary catastrophe and the third with an interplanetary war and added to that a romance of space. The fourth prize winner to be presented next month is in many respects the most unusual of all.*

President Wando Calls a Conference

NOW for months the Martians had been carrying on a delicate and important correspondence with a neighbor of the solar system, a neighbor who sought the rich minerals of the red planet. The enemy's arrogant demands had been refused, though his name made the Martians tremble in terror. And again *The Spectacles* was knocking at their door.

The night on which our story opens marked a grave crisis in the affairs of the Martians. For weeks relations with Venus had been strained to the breaking point, and then without warning Venus had suddenly broken off negotiations. For two weeks no word had come from that planet. For two weeks the people of Mars had been unable to gather any intimation of her intentions. And now the suspense having become unbearable, President Wando had summoned his councilors in extraordinary session.

The great council chamber was ablaze with light and color. Rock crystals glittered on ceiling and walls. Suspended from the arched and lofty ceiling were many flashing lights whose brilliance rivaled that of the noonday sun. Flags fluttered in the artificial breeze. Tapestries of the richest fabrics and coloring depicting battle scenes of the long ago; portraits of the Martian great, and paintings of pastoral scenes of when the world was young looked down from the walls.

The orchestra was filling the chamber with melody, and the hum of subdued conversation moaned through the place, when suddenly a solemn hush fell over all. The orchestra hushed with startling suddenness, and all eyes were turned toward the curtain-draped portal through which President Wando came surrounded by his cabinet.

On a large, canopy-topped chair resembling a throne, the President sat down. After which the cabinet members seated themselves in a semi-circle about him. President Wando was a small man with a massive head set on narrow shoulders. His eyes were large, luminous and set wide apart. His forehead was high, his chin long and pointed, and his mouth was but a mere slit beneath a small, aquiline nose.

The nearby radio was silent, and the large television screen near the President's chair showed only blank emptiness.

"Now for the reports," said the President brusquely.

Just then there was a stir near the portal, and an officer in the rich scarlet uniform of a knight of the air entered and came rapidly up the aisle. Resting his small hands on the arms of his chair the President half rose to meet him as he came up the steps of the platform. Then he settled back staring with troubled eyes.

"Mr. President," said the officer, saluting gravely, "I regret to report another failure. All the scout cruisers have been called in as you directed, and they have returned with me."

The President looked off at the shining walls, but he saw nothing but a mist of tears. For a moment his thin lips quivered as he fought to master himself. Two weeks before one who was dearer to him than life itself, through the accident of an unlocked port had been precipitated into the great ocean of space.

"I feared as much," he said at last. "But I must try to endure my loss like a true Martian. Under present conditions we can not further endanger our fleet in those cold, waste places of outer space. The danger is far too great, and doubtless before this the spark of life which we loved so well has fled to its Maker."

The President paused and looked down over the animated faces of the listening thousands, then slowly over the wan, care-worn faces of his advisors. Finally his eyes came to rest on the blank television screen.

"To-night we must plan a new battle of defense,"

he resumed. "It is evident that Venus has rejected our last overtures of peace—rejected them with contemptuous silence. This can mean only war, war to the—"

The President paused, his staring eyes riveted on the screen, his body rigid and tense with excitement. For on the screen appeared a yellow blur which broadened and developed as it swept into the field of vision until it assumed the contour of a giant space flyer standing clear-cut against the black sky of space.

The Spectacles Arrives

"*THE SPECTACLES!*" exclaimed the President in a hoarse whisper, and his councilors, staring with popping eyes at the onrushing ship, bent forward breathlessly. For a tense moment the hush of death was on the chamber. Then with a murmur the great audience got to their feet and gazed with starting eyes as the great space-flyer took form on the screen. Then the dire words—*The Spectacles,* passed from lip to lip, passed from the chamber and was taken up by thousands on the outside until it echoed and re-echoed in a frenzied shout of despair. For many were the vague but terrible stories that had come to the Martians relative to this awful monster of the air. The people of both Uranus and Neptune had been slaughtered almost to a man, and the earth threatened, yet not a soul on Mars knew anything of its mechanism or method of attack.

LOWELL HOWARD MORROW

But in a few moments the President was on his feet. He held up his hand and the people resumed their seats.

"My fellow citizens, I fear that war with Venus has come at last," said the President with icy calmness. "But let not your hearts be filled with fear, though this unknown beast now rushes upon us. The warriors of Mars have never been entirely vanquished. We must not tremble before the unknown power of this new foe. I am satisfied that our valiant aerial soldiers are well able to take care of him, without even the help of our fleet which is manned and waiting to defend our beloved planet. Therefore, I order that the first battalion of air guards be assembled at once and made ready for service." President Wando turned to an officer by his side. "General Mitho, you will proceed to carry out this order."

The general bowed and hastened away, while a sigh of relief and applause came up from the people. But all eyes were still staring at the screen. Although still thousands of miles distant in space the great golden air craft was nearing them at tremendous speed, and all realized that within a few hours the terrible thing would be circling above them and showering them with death.

Near the inner bases of two round forts near the sea all was bustle and excitement. But there was no confusion, no misunderstanding of orders as the air soldiers prepared for their task. Each man was snapped into a heavy metal armor of red which bulged large at the shoulders and the waist to accommodate and protect the delicate electric appurtenances within.

A heavily ribbed static condenser and amplifier ran down the back of this armor connecting the gravity nullifier and aerial projector with the ray machine and its lenses by means of a broad belt of shining metal. The helmet, whose face and back were made of heavy, non-breakable glass, was equipped with horn-like feelers, or vibrators, which served to keep the equilibrium of the soldier, illuminate his way, and in case of emergency by throwing off powerful static currents prove a strong defensive weapon. Each soldier was furnished with both food and air enough to last him ten days under ordinary fighting conditions. The golden ray, swift and terrible in execution, was his main weapon of defense, and his red armor was built to withstand a pressure of one hundred pounds to the square inch.

As each soldier was made ready he was placed on a magnetized belt which ran to and around the openings in the red domes.

At last all was in readiness to give the unwelcome visitor a warm reception. Anxiously the officers gazed at the television screens which were located at each divisional headquarters. By this time the approaching monster could be observed in detail. The center of its round prow glowed and gleamed like a great green eye, but the lights in its ports showed dully on their background of gold. Truly it had been rightly named *The Spectacles,* for it much resembled those valuable aids of vision. In the center where the nose-piece should have been rose a tower which swelled into a rounded top pierced by a row of ports, and in its crown shone another green eye. In the base of the tower were several large openings each covered with glass. And this, as the watchers on Mars rightly guessed, was the control room of the craft.

Another hour passed and then the Martians were terrified to see the great, shining ship directly over them and nearing the ground with frightful speed. But when within fifteen hundred feet of the forts it stopped suddenly and hung motionless in the still air. As the awe-struck Martians stared upward it seemed that the great, golden bulk of the enemy filled the whole sky. It emitted a pale glow that spread far and near, illuminating both the planet and the heavens above and eclipsing the pin-points of the stars. It was a terrifying spectacle to behold.

It was fully three hundred yards from side to side and half that in breadth, and in the center of each rounded end—which would represent the bows and the lens of the spectacles—was a gigantic concave eye of green which swirled and eddied and flashed with green fire so swiftly that it appeared like the green waters of a whirlpool. And these two great eyes seemed to the Martians to be gazing down on them with a leer of devilish triumph.

Down below, President Wando, gazing at a television

screen, saw that the fateful moment had arrived. He gave an order. Instantly the long rows of red-armored soldiers began to move two abreast on the belts toward the domes of the forts. There the belts turned them swiftly in a spiral. As they neared the top of the dome each man set his gravity nullifier and his projector in motion, and then was shot through the opening into the air.

CHAPTER II

The Attack of the Aerial Soldiers

SOON both forts near the sea were vomiting solid streams of red-clad men, who with vibrating horns erect rose rapidly toward the silent, mysterious craft of Venus. Each man was a unit unto himself, yet an important factor in the whole Martian scheme of war. Each fully realized the gravity of his mission, the probability that a speedy death awaited him above. But not a man faltered. Turning on full power, each shot toward that gold-hued, green-eyed beast and made ready to launch his deadly ray.

To their amazement the soldiers were allowed to reach a close point of vantage without molestation. No sign of life whatever could they see aboard *The Spectacles*. Silent and as unmoving as a statue, the spaceship waited grimly as though conscious of its power it disdained to notice the puny advance of the soldiers. Only its great, green eyes showed life. Finally a couple of dozen men paused in air facing the glowing enemy less than a hundred yards away. With supreme confidence they shot forth their terrible yellow rays, and one man, bolder than his fellows, cast his ray right into the green eye in the nose. But nothing happened. The rays were seen to waver and stop, within a few feet of the monster and disappear into thin air. Rays that had been known to melt the hardest armor known to Martian science were impotent even to touch this hideous craft which had come across the cold of space to destroy them. They realized that the enemy was surrounded by invisible waves of some substance that nothing could penetrate.

Then suddenly the attackers were forced gently back through the air. Each man's ray energizer died, his gravity nullifier grew weak. Against his will and despite his most strenuous efforts he was faced about and thrust back by some invisible power. And as he began to fall his courage fled, panic seized him, and with madly thumping heart he sought to accelerate his progress back into the shelter of the forts. It seemed as if an icy hand had suddenly clutched his heart and chilled his life-blood. This was the fate of every soldier in the air. Bravely he went to the attack, and was thrown back beaten and puzzled by a power he could not see or understand.

So the silent, one-sided attack went on for an hour. Thousands of Mars' most able and fearless ray fighters surrounded the enemy and discharged their rays hoping to find a weak point in the armor of the foe only to be forced down in defeat

At last President Wando, amazed, humiliated and distracted, ordered the attack to cease. All this time the ship of Venus had maintained its silent, inactive poise in the sky. No human life had been seen about it. No projectile had been fired, no bomb dropped or ray sent on its deadly mission. Not even a message had been received from it. Most amazing of all—although decisively beaten, not a soldier of Mars had been lost or even injured.

President Wando called a council of war. Some officers advocated that a message be sent to the master of *The Spectacles*—whoever he might be—to learn his intentions. But the majority advised that the air fleet be called from its subterranean rendezvous and sent against the enemy. The President favored this plan, for he knew that already the Martians had gone too far to retreat, no matter what the strange visitor's intentions might be. So the cream of the air armada of Mars, fully manned and eager for battle, was ordered to proceed against the enemy hoping to cut him down by weight of superior numbers. The mammoth rock doors covering the underground hangars of the airships were flung upward, and then in a great red wave one hundred giant ships shot into the air with rocket speed.

Still, *The Spectacles* gave no heed; showed no disposition to either repel or attack this new foe. Silent and motionless it hung there in the eerie light of the moons and the spectral glow of its own radiance. The thing was uncanny, beyond the scope of reason.

In a few minutes the red fleet had arranged itself in a circle two miles in diameter around its foe. Like monster globules of blood the vessels gleamed in the moonbeams.

President Wando, surrounded by his advisors, watched the maneuver with satisfaction, for it seemed that nothing could withstand the combined attack of these huge craft. It appeared that at last *The Spectacles* was doomed. The red fleet was to have the credit for destroying the mightiest menace to civilization that had ever terrorized the planetary system. The ships of Mars were gigantic, terrifying to behold, and were equipped with the latest engines of scientific destruction.

When all was ready, President Wando gave the signal for attack; and then like a giant python contracting on its prey the red circle narrowed, writhed forward and rushed upon its foe. To the watchers below it seemed that *The Spectacles* must be crushed by the power of this advancing coil. But the ship from Venus made no move. Like a great golden island of the air, conscious of its own superiority and the pathetic impotency of its adversaries, it calmly awaited the attack.

The ships of Mars in regular and beautiful order had narrowed the gulf separating them from *The Spectacles* to an eighth of a mile when suddenly every craft burst into flame. In a twinkling the attacking fleet became a cordon of dazzling fire which blazed fiercely for a few minutes, then died quickly leaving nothing but empty air where the red ships had been but a few moment before. Not a vestige of them remained. Not even a fleck of ashes floated in the air. The fleet had been entirely consumed. And there had been no movement on the part of *The Spectacles*—not even a flash had come from its sides. Serene and unharmed it rode there in the sky.

Terror stricken and stupefied by the sudden loss of the fleet, which had perished without striking a blow,

President Wando gazed at his lieutenants helplessly. An amazing and incredible thing had happened before their eyes. In a surge of hopelessness each saw that such a foe was unconquerable. There was no hope for the proud race of Mars. President Wando believed this—yet as the chosen head of his people he must fight their battles to the last. He must obtain the best possible concessions. He would parley with the enemy.

To the President's amazement and consternation the answer to this polite but militant message came from Luban himself, emperor of Venus. It was the first voice that had come from the grim beast above.

"We demand the immediate and unconditional surrender of Mars," came the thundering voice over the radio. "We do not desire to slay your people. We spared the lives of your aerial soldiers, and would have spared your ships had you appealed to us. But unless our demands are granted we shall destroy your people and take possession of this planet."

Again panic seized the council chamber of the Martians. The startling demands of the conquerors radioed around the globe brought an immediate deluge of frantic requests that they be met. There seemed to be no other recourse. Horrified and impotent in the face of the monster the terror-stricken people implored their government not to further jeopardize their lives by resisting the foe. Only the President and his brave fighters still clung to hope.

"We beg a few days to consider your remarkable proposition," radioed the President at last.

After an anxious half hour interval the answer came in the gruff tones of the emperor.

"We will give you four days," he said. "And remember that is the absolute limit."

CHAPTER III

The Advent of Melvin Blue

At this time, millions of miles distant, Melvin Blue's space-flyer, *Sky Queen*, was rushing toward Mars. After years of patient effort and failure, the powers of the earth, headed by America, had given their consent to his daring plan. He would establish friendly relations and commercial intercourse with the Martians. Mars, although superior to the earth in science and civilization, had always looked askance at the world of the Earthling, fearing the commercial spirit of that money-mad tribe. Mars had been in radio communication with the earth for hundreds of years, but no Martian space-flyer had ever visited it, and the few that had left the earth Mars bound had been lost somewhere in the great ocean of space.

But the sailors of space have no landmarks and no proved charts to guide them across the yawning gulf of nothingness. No friendly beacons send their beams across the sky. No pilot boats venture across the reef to guide them into port.

Anxiously Melvin Blue and his navigator bent over a large solar map in the chart room of the *Sky Queen*. They were not exactly sure of their position. In the great void of space their craft might pursue an endless course to the port of eternity. Many worlds, great and small, had swirled past them, and fiery meteor trains—those hurtling fragments of worlds which they could not assign their proper place in the heavens because unaccountably their communication with the earth had ceased.

"I reckon we'll have to turn back, Mr. Blue," finally said the navigator straightening up and looking at his employer with an expression of despair. "But I'll be hanged if I like to do it."

"Nor I," said Melvin Blue. "Now let's—"

"There is a queer speck just off the port bow, sir," suddenly announced the lookout in the control room.

Melvin Blue stared at the transmitter.

"A meteor, isn't it?" he called back.

"No sir. The thing is a bright red with a bright silver stripe about the middle, and it is hanging motionless."

Followed by his navigator, Melvin Blue rushed to the control room, glanced at the television screen and then glued his eyes to the bow binoculars. Although many miles distant, the powerful glasses quickly defined the object. It was indeed, an odd looking bundle to be found afloat in space. A round, barrel-like body of red tapering down to a round, purple-colored end. And midway about the body was a bright metal band which shimmered and flashed in the sun's rays.

"Throttle down," ordered Melvin Blue. "We will investigate."

The *Sky Queen's* terrific speed was checked almost instantly, the retarding motors working smoothly and silently. But so great was the momentum that she was carried past the object a score of miles before she could be checked sufficiently to turn back under the full force of the retarders. But finally she was brought to a stand beside the isolated speck in space.

A port was opened quickly by compressed air, a grapple swung out and in the fraction of a minute the metal-cased object was swung aboard. Then the nose of the great, slender craft was again put upon her course, the motors started and the *Sky Queen* roared upon her way.

"Good God, it's a woman!" gasped Blue, staring through the thick glass of the helmet. "Quick, we must remove this armor!"

Hastily the armor was removed and the woman lifted out.

A dark-haired girl with finely chiseled features and a plump form reclined inert and limp in the arms of Melvin Blue. At first he thought her dead, for there was neither respiration nor pulse, but placing his ear close to her breast he detected a faint flutter of the heart.

"She lives," he exclaimed breathlessly.

She was placed on a couch, the electric resuscitator and other restoratives applied by the ship's doctor, and in a few minutes Melvin Blue was glad to see her eyelids flutter, then open. She looked around in a stare of wonder, then whispered something in an unknown tongue. When they stared at her without comprehending she attempted to rise, but sank back with a moan. The doctor gave her a sedative and in a few minutes she sighed and fell asleep.

For two days she slept soundly while the space-flyer roared on, and Melvin Blue, sleepless and filled with

wonderment, hardly allowed his eyes to wander away from her. The odd armor that had encased her when found, her discovery alone in the cold of outer space, millions of miles from any known world and her rare beauty and form that spoke of a high state of culture and refinement, formed a hopeless puzzle. And he watched the returning glow of life in her cheeks with sighs of gratitude. Already he felt that this girl's life was more precious to him than his own. Never before had love of woman appealed to him. He had been too busy with his inventions to think of the fair sex. And now the *Sky Queen* embodied the essence of all his talent. He had evolved a super vessel which, should the test be successful, he would present to his government, confident tha tshe could master any space-flyer extant.

The Girl Explains

ON the third day the girl awoke. The dullness had left her eyes and she smiled at those bending above her couch. Again she spoke in that odd, unintelligible tongue.

Again they stared and shook their heads.

"Forgive me. I should have known better than to address you in the language of my people," she continued in the interplanetarian speech that had been evolved by radio connections with different worlds.

"Who are you?" asked Melvin Blue.

"I am Zola, only child of President Wando of Mars."

They all stared in amazement.

"Why we are on our way to Mars," finally said Melvin Blue. "At least we think we are," he added doubtfully. "This morning I 'shot' the sun, but we are not sure of our reckoning, and consider turning back unless we can find ourselves soon."

"May I see your chart?" asked the girl.

A chart was brought to her. She studied it carefully for a few minutes, comparing it with the navigator's figures. Then she took the pencil which Melvin Blue tendered her, and after a few minutes' figuring announced:

"Allowing for the probable ether drift and the deflection from your course in picking me up I figure you are off but a point."

The course was changed to conform to her calculations—for Melvin Blue clearly recognized her ability as a space navigator without knowing why. Then he asked:

"Pray tell me how you came to be in such a predicament?"

"Carelessness," she answered with a wry smile. "Every man and woman of Mars is a trained aerial soldier. He is taught to wear our red armor and fight by its aid. Two weeks ago I was a member of a peace ship sent out to meet a like vessel from Venus to negotiate a treaty between Mars and that planet—which by the way covets our great stores of minerals. But owing to some miscalculation we missed each other.

"After scouting about for a day we set out for home. An improvement to the gravity nullifier of our armor had just been perfected by our commander. I had donned the suit to test out the controlling mechanism, and he had left me for a moment to secure some article. I was leaning against a closed port. Suddenly and without warning it swung open and precipitated me into space. As I swung away from the side of the rapidly moving ship I realized that some one had carelessly left the port unlocked, and that I was floating alone in the awful depths of spcae. A great swarm of Leonids were passing between us and the sun, so the blackness of night was about me. In a twinkling I saw the lights of the fast receding ship vanish in the darkness, but I did not give myself up for lost.

"Doubtless they would return to look for me; but I was swirled away in an unknown direction, probably influenced by the swirling rush of the Leonids. I was not prepared for a long voyage, having no directional finder with me, but as every suit of armor is constantly kept supplied with ten days' rations of food, air and water and is insulated against the intense cold I was able to keep alive. But when the night wore on and day broke again with no sign of my companions' ship I gave myself up for lost. Two days ago I consumed the last of the food and water and nearly all my air. You, sir, found me just in time. You have saved my life."

"I am only too happy that it is so," said Melvin Blue gallantly. "I shall be honored and happy to take you home."

"Thank you. I feel that I can never repay your kindness," she said with emotion. "But you may be too late. Perhaps I have no home. I fear that already we are at war with Venus; that already my people are crushed by the power of *The Spectacles*."

"*The Spectacles!*" he exclaimed.

"Yes, the most horrid and most powerful aerial beast in the universe. It is said to be invincible and led by the powers of darkness. Perhaps you should not take me home," she added fearfully. "It might cost you your life, the destruction of this noble ship. I cannot ask you to sacrifice so much for me. Please, turn back before it is too late." And the girl shuddered as she pressed her hands tightly over her eyes.

"My dear young lady," encouraged Melvin Blue. "Now I remember having heard of *The Spectacles*. Once that redoubtable craft came near the atmosphere of the earth and sent us an insolent message. However, we ignored it. Put your trust in the *Sky Queen*. I do not fear *The Spectacles*. And, besides, I have set out to take you home."

The girl's eyes glowed with admiration as she noted his firm lips and the grim set of his fighting jaw.

"I beg to report, sir, that we have just sighted a space-flyer," said an officer entering hurriedly. "She is about to cross our bows and I fancy by her actions that she wishes to speak to us."

"Reduce the speed in half," commanded Blue, following his aid from the room.

The television screen in the control cabin showed a large liner of peculiar construction speeding obliquely toward them. Again their speed was cut in half as they observed the stranger to do likewise.

"What ship is that?" suddenly came the challenge over the radio in the interplanetarian tongue.

"*Sky Queen* of Boston on the earth," returned Melvin Blue.

"Where bound and for what purpose?"

"To Mars to establish commercial relations with the earth. May I ask what ship is yours?"

"*The Rounder* from Venus. We are friends of earth and would come aboard," said the man from Venus.

"Permission is granted," said Melvin Blue crisply as he returned to Zola.

The ship from Venus cut a great circle and soon was sailing close above the *Sky Queen* at exactly the same speed. Lower she dropped until only a few yards separated the two space-flyers. Then a small ladder was dropped from a port in the *Rounder's* bottom, and a heavily set man came down it rapidly. A door in the *Sky Queen's* top opened to receive him, then closed quickly as he entered. An officer conducted him to Melvin Blue.

The fat, round face of the man from Venus beamed as his pale eyes fell on the girl.

"The television screen showed us this lovely maiden," he said in oily accents, "but it did not reveal half the beauty." He bowed low, making a comical figure in his tight uniform of gray. "May I ask an introduction?"

"I am Zola from Mars," said the girl proudly, rising and confronting the officer. She swayed, but Melvin Blue stepped quickly forward and supported her.

"Ah, yes," said the officer. "I regret to inform you that my people and yours are at war."

"Then it has come at last," she gasped. "And is—is that terrible air monster there over my beloved home?"

"To be sure, my dear Miss. I am glad to state that *The Spectacles* has the situation well in hand. There has been a battle and of course your people have been worsted."

The girl trembled in Melvin Blue's arms.

"And now, sir, you must turn back to the earth," went on the man from Venus, turning to the owner of the *Sky Queen*. "Our patrol forms a ring around Mars beyond which none may pass. As a friend I warn you, sir, to turn back at once. If you proceed you will only invite a sudden and terrible death. It will be my pleasure to take charge of this young lady and convey her safely to her people."

"What is your pleasure?" asked the owner of the *Sky Queen*, looking into the eyes of the girl. For answer she shrank closer in his arms.

"You go to hell," said Melvin Blue with true Yankee vigor as he turned fiercely on his visitor.

The officer stared blankly. Melvin Blue nodded to a grinning aid standing by the door. With a firm grip he seized the man by the shoulder and conducted him from the room. And then when he was safely aboard his own craft the space-flyers drew apart and the *Sky Queen* resumed her course toward Mars.

However, she was not to proceed unmolested. Suddenly the golden-hued ship of Venus began to sparkle and flame with white fire as she fell in behind the *Sky Queen*. Melvin Blue, gazing at the television, only smiled as he ordered the electric armor to surround his ship which began to lead the way at a tremendous speed. But the following craft was not to be outdone so easily. She, too, put on more power and pressed closely after the *Sky Queen* as she noted the futility of her rays.

On and on through they raced with no appreciable advantage on either side. Then the *Sky Queen*, gradually at first, then by leaps and bounds, began to draw away from her pursuer, until it was left far behind.

The scout patrol ship of Venus was seen no more during the remaining two days that it took to complete the voyage to Mars.

CHAPTER IV

A Warning

SUNSET of the third day found them spiraling slowly downward above the red planet. Side by side Zola and Melvin Blue watched plain and mountain and sea take form beneath them, and then suddenly from behind a mountain ridge they saw the huge yellow bulk of *The Spectacles* poised motionless, silent and grim above the forts.

"Stop!" exclaimed the girl. "Allow me to glide down in my armor. Likely I shall not be molested, for I think there is a truce. But I see no signs of warfare. I ask you not to risk a battle with that terrible, yellow monster."

"I am neither seeking trouble nor running away from it," smiled Melvin Blue. "And I have set out to take you home. You say that the landing field nearest that round, central fort will best suit your convenience. That's where we land."

"Thank you," murmured the girl.

No more was said until they had gently come to rest near the fort.

"Remember, I have your promise to visit us," she said as he helped her from the ship. "I want to present you to my father that he may thank you for your great service to me."

"It is nothing, and the honor is all mine," he said simply. "I shall be glad to avail myself of your kind invitation."

She pressed his hand, then turned and ran up one of the rock buttresses of the fort. She took a few steps along the gray walk beneath the hooded ports, then stopped before one. Turning she waved her hand at her rescuer, then disappeared within.

Immediately the *Sky Queen* soared into the air, while Melvin Blue carefully scanned *The Spectacles* for signs of life, particularly did his searching eyes linger on the great, green orbs that glared down balefully. All this time the mysterious craft had remained stationary. So calm and lifeless did it appear that it seemed more like a model carved from a gigantic block of gold than an engine of war.

Melvin Blue was amazed. He could not conjecture why he had not been attacked. All about was the silence of the tomb. There were no signs of strife or preparation for war. Sedate and calm, like an angel monarch guarding the destinies of worlds, *The Spectacles* maintained its position. Only its great eyes flashed with greenish fire as the *Sky Queen* rose majestically into the sky.

Suddenly the call letters of the interplanetarian code bellowed from the radio.

"Earth being, take your craft and depart at once if

you would live," came the startling order as Melvin Blue stared. "Luban, Emperor of Venus, orders."

As the *Sky Queen* soared high above *The Spectacles* Melvin Blue gazed down at the green eyes speculatively. Now he had seen them both from above and below. On both sides they were concave, sloping sharply to a thin center, and as he watched the swirling green fire he concluded that they formed the heart and the soul of the ship, and that she was sustained, driven and armored with cosmic rays. Immense as the eyes were—being fully two hundred feet in diameter—he believed them to be composed of a fine net-work of antenna and frail mirrors which had the power of absorbing, amplifying and directing the cosmic rays. That she carried some powerful ray machine he did not doubt, but as she drove edgewise through the air, he conjectured that the rays were projected only horizontally. As they passed on a grim smile wrinkled his bronzed face.

Luban was not feared by Melvin Blue. So but a mile away at an altitude of only two miles the *Sky Queen* came to rest. She was not a formidable looking craft, appearing like a slender, elongated cigar set against the blue. Her long, needle-like nose was heavily cased with *solene*—the hardest, lightest, toughest metal known to man—and the same shining metal sheathed her from end to end. With closed ports she presented an exterior smooth as glass, almost as hard as the diamond and, like the diamond, capable of passing trial by fire. Propelled solely by electricity, which her motors gathered from the air and the ether as she drove on, she was capable of tremendous speed.

"Who are you, and what is your purpose here?" again came the coarse voice of Luban. Melvin Blue smiled.

"I am Melvin Blue of the United States on earth, at your service, sir," he shot back. "Who wants to know?"

"I am Luban, the Great, Emperor of all Venus," came the proud answer. "We are on a mission of war—Mars lies supine and helpless at our feet—and at this time we tolerate the presence of neither friend nor foe. But as we are at peace with the earth, I do not wish to harm you. Therefore you will kindly leave at once."

"You are very kind," said Melvin Blue sarcastically. "But having not as yet discharged my mission I would tarry yet a while. If—"

He stopped abruptly.

"Will the captain of the *Sky Queen* honor me with his presence?" interrupted a pleasant voice. "President Wando, speaking."

"I shall be delighted," returned Melvin Blue.

A Terrible Bargain

IT was the work of but a few minutes to again land the *Sky Queen*. A guard came out of one of the hooded ports and conducted her master to the council chamber where sat President Wando beside his daughter.

"How can we ever repay your great kindness?" said the President, extending his hand. "My daughter has told me all. Although now at war and in poor state to extend our hospitality, I assure you that all Mars is at your command."

"You flatter me," said Melvin Blue. "The service was nothing, and I am only too glad—"

He checked and turned toward the portal following the President's intense stare. A newcomer resplendent in gold lace and flashing medals, unaccompanied by even an aid, was striding proudly up the aisle. He was a portly man short of stature, with a moon-like face and great, protruding eyes.

"I am Emperor Luban of Venus," he declared pompously, stopping in front of the President and regarding him with a leer of insolence.

"You honor us, though you come uninvited," said the President graciously, motioning the Emperor to a chair.

"It is not meet for me to sit before the great," he said mockingly as his saucer-like eyes fell on Zola and set there in a warm stare of admiration. "May I have the honor of an introduction?" he added, casting a baleful glance at Melvin Blue.

"My daughter, Zola," said the President stiffly.

The Emperor extended a fat hand which Zola scarcely touched as she shrank back involuntarily and stepped closer to her rescuer.

"The time of the truce has nearly expired," said the Emperor without taking his eyes from the girl. "I trust you people are ready to agree to our demands."

"We are not ready," said President Wando firmly. "We crave more time to ponder such a momentous question."

"I will give you no more time," said the Emperor harshly. "Unless you agree to my terms by noon tomorrow *The Spectacles* will lay waste your planet and reduce your people to slavery."

Although Zola had stepped aside and was earnestly talking to Melvin Blue the master of Venus followed her every movement with his eyes—eyes that glowed with a gloating, evil light.

President Wando made no answer. He just sat gazing at the repulsive face of his enemy.

"I object to the presence of this—Earthling," continued the Emperor, frowning at the owner of the *Sky Queen*. "He has no business to witness our affairs of state. I have ordered him to begone, and shall attend to him shortly."

Melvin Blue's face went white with anger, then he mastered himself and came up to President Wando.

"Pardon me, Mr. President," he said, "but as our interview has been rudely interrupted I shall withdraw. However, I shall be happy to call again at a more opportune time."

"There will be no other time," cut in the Emperor meaningly.

Pretending not to hear the insolent remark Melvin Blue bowed to the President and his daughter and withdrew. But as he went he whispered to the girl that he would come again.

"Would you free your people from the serfdom that now threatens?" went on the Emperor. "Would you have me withdraw *The Spectacles* and leave your world in peace?" The President stared. "Your daughter is fair to look upon," continued the Emperor. "I would have her for my queen."

Zola shrank back with a gasping cry, while the President stared in amazement.

"I will leave you now to consider my proposition,"

said the tyrant. "But at nine o'clock to-morrow forenoon I must have my answer."

Without further words the Emperor turned away and stalked haughtily from the chamber, went to his plane and flew back to the deck of *The Spectacles*.

"You heard what he said, my daughter," finally said the President in a hollow voice.

"The hideous monster!" she cried. "I would sooner die a thousand times than to become his queen."

"Yet you would sacrifice all for your country," he reminded gently, "even to life itself. Emperor Luban is mighty. He offers us either life or death, freedom or slavery. He will keep his word, and despite reports to the contrary, he may not be so bad, after all."

"Father!" she choked. "How can you think of such a thing! I could never love such a horrid being. I could never—"

"But think of Mars, my child," he interposed hurriedly. "Think of the welfare of millions of your countrymen now in your keeping. I do not ask you to accept Luban's proposition off hand, I only ask that you give it serious thought. There seems to be no other way to free us of the despotic yoke of Venus," he added bitterly.

Zola turned away and sought her room. Well she knew her father's wish. He would not willingly sacrifice her, but above all the welfare of this people lay close to his heart.

SLEEPLESS and miserable she wrangled with the problem throughout the night, and always she knew that those terrible green eyes were glaring down at her beloved land. But as the red sun rose over the bleak hills she took the situation in hand. She would appeal to Melvin Blue.

In her soldier armor she rose to the long, silver ship that glistened like a jewel in the rays of the sun. Its master saw her coming and let her in as he stared at her in wonder. Briefly she made known her dilemma. But scarcely had she ceased speaking when the loud, raucous voice of Luban crackled from the radio.

"The young man from the earth," he rapped out, "will kindly permit the maiden, Zola, to return to her father at once, or I shall let loose the awful power of *The Spectacles*. And after the young lady has departed you will at once turn the nose of your ship toward the far off earth."

"And if I refuse?" asked Melvin Blue.

"Then I shall send you down with the terrible rays of *The Spectacles*—gently, of course, for the maiden's sake. But after she has departed from your craft it shall be consumed like a wisp of steam in a furnace."

"Miss Zola is my guest and I shall protect her as such," said Melvin Blue. "I refuse to obey your orders."

"Then prepare to feel my power," rasped Luban.

In the television screen they saw that his fat face was purple with rage. He gave rapid orders to his officers clustering about him. Then *The Spectacles* began to rise at a tremendous speed straight into the air.

Zola looked at her rescuer with terror-stricken eyes. "You must not sacrifice yourself and men for me," she said. "Let me into the air and I will go home," she went on, gazing at the great, golden monster. "See, they are coming up to our level, then they will rush forward and smite us with the awful fire that snuffed out the brave ships of Mars."

"Luban is coming up to our level, all right," said Melvin Blue calmly. "But when he strikes I fancy we will be like the Irishman's flea."

"Like the Irishman's flea!" she exclaimed.

"Yes—we will be somewhere else."

It took *The Spectacles* but a few moments to reach the three mile level where rode the *Sky Queen*.

Melvin Blue gave a few sharp orders, then the *Sky Queen* dove straight down, but owing to the gyroscopic mountings each compartment of the ship maintained its normal level. Down, down at terrific speed she plunged like a streak of silver in the bright sunshine. It seemed that they must crash on the sharp rocks rising so swiftly to meet them. Zola was clinging in terror to the *Sky Queen's* master when the craft suddenly straightened out and shot to a position directly beneath *The Spectacles*. Then she turned upward and rushed with full speed, straight as an arrow toward the center of one of the green eyes.

Melvin Blue was taking a desperate chance, but he felt that circumstances justified it. He would cripple and destroy his antagonist by striking at his heart. All ports of the *Sky Queen* were closed, and like a great, silver needle she shot to the mark. There was a grinding hiss, a thunderous roar, and then in a moment it was over. Looking down, they beheld, in place of the glowing, green eye, a fire-rimmed, smoking hole.

For a moment the great ship of Venus wobbled crazily, then she was righted but began to spin around and around like a giant top.

Smiling grimly Melvin Blue checked the upward flight of the *Sky Queen*, then he turned her over end for end, and straight as a plummet she dove down toward the remaining eye of *The Spectacles*. A moment later she had emerged below and the pride of Venus, broken and sightless, was staggering like a drunken man. Then in a moment she began to careen and fall in a zig zag line toward the rocks. As they watched breathlessly she struck amidship on a sharp peak and broke in two.

The *Sky Queen* came to rest near the sea as the awe-struck, but grateful Martians poured from the forts and stared at the funeral pyre of their enemy. Slender tongues of flame shot high in the air and great clouds of white smoke rose from the golden sides.

At last President Wando managed to wedge himself through the crowd to where Zola and Melvin Blue stood beside his ship. Unable to speak for a moment he could only grasp his savior's hand.

"You have saved our world," he managed to say at last. The scourge of the skies is no more and Mars is forever free. My dear sir, to you we owe a debt of gratitude that we can never repay."

"I consider myself more than repaid already," said Melvin Blue as Zola pressed closer to his side.

For a moment President Wando stared, then his eyes

(*Continued on page* 365)

The Torpedo Terror

by Edsel Newton

(Illustration by Leonard)

The tiny ship of destruction struck the house; a heavy explosion rocked the countryside. We felt our plane staggering.

THE TORPEDO TERROR

By the Author of "Freedom of the Skies."

IT was the fifteenth of October, 1939. I had come close to the end of my rope in the office of the *World-Bulletin* when the irate city editor, Spencer, bawled the life out of me for having missed out on a story. For days afterward I had suffered a mental depression which almost threw me on the proverbial rocks. Nothing mattered to me. I had that feeling of staleness and a disgust with life that every reporter experiences only too often. Spencer's word-lashing only accentuated it. It wasn't that I cared a hang about the job, and I might have been thankful at the moment had he fired me from the sheet. But instead of firing me he had told me to take a few days off and rest up. Even this did not move me. I was at the point where I could not be enthused, and when one is in that apathetic state, he may as well risk his neck in some daring adventure. That the adventure was soon to come I had no knowledge. Otherwise I would never have shown this lack of interest which threatened my entire future as a newspaper man.

One thing that had always tended to cramp my style, if I had any, was the writing of industrial news. Spencer had a weakness for "progressive articles," as he called them, and I was the goat. I had come to know every factory on the East Side of Los Angeles. They constituted my beat, and to break into print with a police story was a treat for me. Of course, when there was an explosion or a disaster of some sort I had to write the story, but nothing really exciting ever came of that beat. Before I left the office of the *World-Bulletin* that morning, Spencer called me back to the city desk. He was engaged in his customary occupation of trying to find a match in one of his pockets, but the old gleam was in his eye again, and I knew something was up.

"Edwards, I want you to follow instructions to the letter and do me a favor before we go to press."

"But I'm gone—you said I could take a few days off," I objected.

He grinned. "You won't go when you hear this—not until it's finished, my boy! I just got a telephone call from the Tilden Aircraft Works saying something funny is going on around their plant. Now you go down there and see Tilden Senior, and get the story."

"I don't know Tilden, and you can send some one else to get the story," I said, remembering the day when old Tilden himself had shouted at me through the window of his office, *"No visitors allowed!"* "That old egg doesn't crave publicity. He has hated reporters since that cub you sent down there wrote something about his factory making a new kind of sky hook."

SPENCER laughed—he was an amateur flyer.

"Well, well, Edwards! And what do you know about airplanes?" he demanded.

"Enough to make my first solo flight a trip from San Diego to Los Angeles," I boasted, displaying the latest thing in a pilot's license. Then I added, "That's what I'm going to do now—if old Tilden will give me the use of a new *Tourister* for having unearthed this story—if it breaks."

"Then you'll go?" the elated city editor asked.

"I'm gone, only don't run a line about this until I get back. What did he say—something funny going on?"

"More than that, but you go down and see," Spencer answered as he turned back to his work.

From that minute I had an incentive. My subconscious told me that something worth while was going to transpire. I did not even stop for lunch, so curious was I to know just what "something funny" happened to be. This time, however, I walked right into the main office of the Tilden factory and stood before a certain young lady who had that old Tilden gleam in her eyes. I knew from the minute she was the airplane manufacturer's daughter, for she came out and talked without flying around the hangar. Nadine was born to fight.

"Sit over there, Mr. Edwards," she directed.

I sat.

"My father isn't in. He isn't excited about what the workmen have discovered on the premises, but it just gives me the willies."

"What's that—mice?" I suggested.

She gave me another hard-boiled look, and continued, ignoring my banter. She had words, but she never wasted them.

"We would never have been excited about this, but for a strange coincidence. What is happening here has happened in two other airplane factories on the coast," she went on.

"But aren't you going to tell me what it is!" I insisted.

"Don't be in a hurry, Mr. Reporter. I think we're giving you a break as it is. I shall continue."

I winced.

"We have found—that is, the workmen have found—several strange machines of an intricate nature concealed about the factory. To date we have found five of them, all under the floor of the main assembly room. You see, we tore up a portion of that floor to make room for a big *Twin*, and it was then the first one was found. My suspicions were aroused, and I ordered the boys to search the entire plant. The machines, or whatever they are, may be dangerous. I don't know. I would never have become alarmed, but when dad and I flew up to 'Frisco yesterday to place a

IN the course of the developments on aircraft in the past few years, it has already been determined quite satisfactorily that it is possible to send an airplane into the air and guide it by radio controls. The immense importance of this in time of war cannot be overestimated. For by means of radio control it will then be possible for a nation to send over the enemy lines thousands upon thousands of planes laden with high explosives and containing no pilots whatever. Thus at the risk of no men it will be easy to bombard all the enemy's great centers of population.

One of the necessary features in a plan like this would be some means of really guiding the plane to the exact spot chosen for the dropping of the bombs. If that difficulty could once be overcome, the war of the future would be decided on the ability of the combating nations to build more and more airplanes. It would be literally a struggle of numbers.

But Mr. Newton has his own solution for the difficulty mentioned above, and incidentally in working it out he gives us a dramatic picture of some problems the world must face and how they may be overcome.

motor contract, we found that the same thing had happened there at the Rickman-Conroff factory."

"Let me see one of the things," I requested.

A Promise

SHE got to her feet and crossed the room to another desk. I followed her and watched her open a large drawer, and inside that drawer I saw five small boxes made of ebony She permitted me to examine one of them. It was easy enough to open the box, but not so easy to name the apparatus inside. The six walls of the box were covered with the ordinary coil used in radio sets, and the center of the box was filled with what appeared to be delicate radio instruments. There were other coils, a tiny battery, apparently of a very high amperage and voltage for its size, and an ordinary "peanut" detector tube. All of this outfit was enclosed inside that little box which measured nine inches square.

I studied it for awhile, but finally gave it up and turned to Nadine with a shrug.

"Tell me why those should be found in three airplane factories within a week, Edwards? What purpose do they serve?"

I sighed. "It's beyond me, Miss Tilden. There are certainly no explosives within these boxes."

"None," she agreed, watching me open them one by one and search the inside. All of them contained the same strange delicate machinery.

"Somebody knows why those instruments are placed in these factories, Edwards—I'll call you by your last name—and I wish you would find out. What do you propose to do?"

"Turn them over to the police and write a story for the *World-Bulletin* about it," I answered.

She pounded her tightened fist upon the desk.

"You big simp! Write a story?"

"What can I do?" I demanded. "If you wanted a detective, why did you call a reporter?"

She pushed me down into a chair and sat on the desk, looking down into my face.

"I did call you to write the story, but I've changed my mind. I have a better idea."

"Where did you get it?"

"From you. You are the industrial district reporter. You know all the factories and big business interests down here. Every time a cargo plane comes down on our landing roof you're there to tell the world what a whopper of a load it brought in. Everytime someone closes a big deal, it is you that write about it. In other words, you know this district, don't you?"

I nodded. "All of it."

"Very well, search it. Get the facts and take some of my men and search this entire district. When you're finished with that I'll take you up to 'Frisco to the Rickman-Conroff factory and we'll see how many more of the things they have found."

"Leave it to me—I'll manage it better than that," I promised.

"If you write a story about it you'll put whoever is responsible wise. You've got to promise!"

I DID promise Nadine, however reluctantly, that I would not give the story to the paper until the time was ripe. Then I set off with her to choose several men from the Tilden factory force. She pointed out seven whom we knew we could trust, and I called them all into a conference room where I laid my plans before them. We were to inform the head of every concern in the district and have them quietly search their factories and store-rooms for the strange contraptions. They left hurriedly to carry out orders, and Nadine turned to me, her eyes gleaming

"You're thinking what I'm thinking!" she said firmly.

"Possibly."

She nodded. "A plot of some kind. Those machines don't work alone."

"I don't think they do. I think they are part of something bigger than one would ordinarily believe."

"You mean—"

"I don't know what I mean. I only know I shall inform federal authorities if this turns out to be what I think."

"Then you do mean something, Simpleton."

"I'm not saying," I answered. "Only I wish you would tell me if anything strange has been going on in the factory lately."

She smiled impudently. "Yes, someone almost sold dad on that old goldbrick idea of a fuel-less motor!"

"But you'll remember they said people would never see radio-talkies," I reminded her. "They said automobiles would always burn gasoline and never fly, but they're doing it."

"And I wouldn't give you ten cents for an aerocar," she said, snapping her fingers. "You can't make a good airplane for crowded streets. Look at the failures dad made four years ago—people bumping wings and getting traffic tags and forgetting to stop their propellers. Not us! We're going to stick to the good old idea of making airplanes to fly, not to roll in the streets."

"And you're making the best planes in the world, Miss Tilden," I said. "But you must watch out for whatever it is that's behind all these strange contraptions."

CHAPTER II

Important Discoveries

WE passed two hours discussing the situation before we got a report from one of the men we had sent out into the factories and store-houses in the district. He telephoned up just as we were leaving for a belated lunch. His name was Gastro, and he was one of Nadine's favorite employes, a trustworthy man of middle age.

"We have found a carload of them," he said. "I would suggest you call the police. There seem to be several in every building, especially in airplane buildings."

"Gather them in," I said, "and don't permit anyone to call the police. Get three or four trucks and have them gather all the machines up and haul them out to the abandoned house on Mr. Tilden's ranch at Saugus." I ordered a taxi when he hung up, and then turned to face the amazed girl, who stood watching me curiously.

"You're taking a lot of authority."

"I'm handling this—for you," I told her. "That house is five miles from any other. Those machines will be safe there, and so will the industrial district—all these airplane factories."

"What do you make of it?"

"I'll tell you while we're lunching," I said, and she followed me out to the cab without a word.

While we were at lunch we tore into several theories as to the possible purpose of the strange contraptions which we had found, but we had no proof of anything. And to delay decisive action spelled disaster, perhaps, for those ebony boxes with tiny radio instruments so deftly constructed certainly meant something dangerous. Their evident importance dawned upon us more and more as we learned the progress of our men who loaded them by the dozens into trucks. They had found them everywhere—in buildings—generally scattered about under wooden floors or between bales and boxes. There were more of them found in and about airplane factories than elsewhere.

We followed the trucks to the ranch out near Saugus, and watched the men unload them and place them in the abandoned house far out on the side of the foothills. Then we hurried back to Los Angeles.

IT was after four o'clock that afternoon when we finally arrived back in the office of the Tilden airplane factory to find

gruff old Lawrence Tilden patiently awaiting the arrival of his daughter. He would accept no explanation from either of us but banged his office door shut while Nadine and I were discussing plans for future action. How that old man hated reporters!

However, we were not long in waiting before old Tilden came out again and demanded of me, "Since you're making so much of all this, what are you going to do about it?"

"I'm going to fly a kite," I told him, remembering the time he threatened to tie me to the tail-skid of a China-bound liner, solely because I wanted the passenger list.

"You'll fly into trouble if you don't stay away from my daughter. Now what's on your mind?"

"Salvation," I told him.

He suddenly tugged at his thick shock of hair and his jaw snapped. "Is this would-be scribe crazy, Nadine?" he asked his daughter. I answered for Nadine.

"The salvation of the airplane industry," I explained. "Somebody's playing pranks, and I believe you'd be the goat before you'd grant that we're capable of saving it."

"Explain!" he yelled as I started to go.

I stopped, and I told him of the three truckloads of those apparently infernal machines which in themselves seemed harmless, but which, according to my scientific beliefs, were a part of something else. He listened attentively for twenty minutes while we explained the possibilities of these boxes and their contents, and finally sat down to contemplate the situation seriously.

Then I had to tell him why we had not chosen to tell the police or to print the story in the newspaper.

"I think you're crazy if you don't!" he said, presently. "If something is boiling the police should know about it."

Nadine spoke then.

"Dad, let us go to 'Frisco to the Rickman-Conroff factory and tell them all about it. I don't think it's best to telephone them, but take Mr. Edwards along and let him go over this with them. They seem to . . ." She stopped suddenly. "Gosh, Edwards, I don't know what to think. Let's get into my *Tourister* and go up there right away. You can go home, Dad. Come, let's go."

The Mysterious Explosion

SHE was tugging at my arm in her excitement, and I could do nothing but follow her. The old man sat there staring at us after she had kissed him on the forehead an dsnapped an order into the telephone for her plane. We went out upon the great landing roof above the Tilden factory and snapped an order into the telephone for her plane. We green and white affair with mohair upholstery and all the comforts of home. She pulled the starter switch and the powerful little Rickman-Conroff blasted out a challenger to the gathering darkness. Then when the roar had turned to a steady drone she released the brakes, the stick came back, then forward, and we lifted into the evening air, twisting and bobbing about in the up and down currents until the plane gained enough altitude to clear the bad air that invariably hung a few hundred feet above the city below.

"I've always wished someone would invent a bump eliminator," she said. "I'd fly a big twin, but I love this little crate—only it's hard to handle at times." She shoved the gun forward and the little ship climbed against the wind and around into the proper course, and all the while she was telling about her experiences in the factory and in the air. I was watching the compass all the time, wondering if she had allowed for the drift and all that, until I remembered that the modern compass did not require so much attention.

Within a few minutes after we lost sight of Los Angeles I saw the mountain pass light near Saugus and suggested that she drop down over the ranch and see if all was well at the abandoned house where we left the strange instruments. She put the Tourister on her ear and slid down to within a few hundred feet of the house on the side of the foothill. We both looked at it closely for a while, until we were finally satisfied that the house was as we had left it less than two hours before. We were ready to start climbing again when we saw the mountain before us, and turned southward to avoid it, slowing down a bit as we headed into the wind. The sky had suddenly cleared and the moon and stars were out. It was a beautiful evening and one could not help looking down at the mountainsides and the valleys with their shadows farther and farther away as we climbed. Then Nadine started to put the plane into a banking turn and head for San Francisco. As she did so, my eyes wandered back toward Los Angeles for a last glimpse of our home city, when I saw something curious floating slowly alongside our plane.

AT first I could not believe my eyes. It was, from all appearance, a very small dirigible, about twenty feet in length, of rigid structure, silvery gray and shining in the moonlight. I pointed it out to Nadine. She cut the throttle of the Rickman-Conroff and got behind it. It was travelling slowly toward the ranch. Nadine was compelled to hold her little plane down near to the stalling point in order to remain behind it, and unconsciously let the plane lose altitude as the tiny dirigible floated down toward the house.

I yelled and reached for the control stick. "Get up and out of this valley, quick!" I screamed. She looked at me frantically. "Pull up—far as you can before that thing strikes the ranch house!" I yelled.

She understood and let the motor full out and climbed as fast as she could. Our eyes followed the tiny bag as it sped down toward the abandoned house where we had stored the instruments. We watched it glide into the valley and nose downward in the direction of the house, and then sat tensely waiting for whatever would happen.

The world knows what happened. That tiny ship of destruction struck the house, a heavy explosion rocked the countryside and tore a hole quarter of a mile in depth and as much in width into the side of the foothill. We felt our little plane stagger under the concussion and plunge earthward out of control. A blinding glare invaded the sky for a moment as we sped downward, only to disappear and leave us in almost total darkness. I was watching Nadine who in this horrible moment was wrestling frantically with the controls of the *Tourister*, not daring to interfere until a last desperate moment. But she won out. The plane flattened out within a few feet of the ground near where the explosion occurred, and then we started climbing again. As we climbed and wondered what the explosion could mean, the powerful Rickman-Conroff seemed to be snorting out an enraged challenge to the darkness. Then we realized what we were dealing with. The air was filled with clouds of dust shot skyward by the explosion. In order to get our bearings again we had to climb high into the sky. When we had finally reached the moonlit heavens again, Nadine turned breathlessly to me and said, "We're going back home!"

Without another word, she checked the compass before her and swung around on the course. We saw clouds blowing in from the sea and threatening our pathway southward, but the sheer pluck of this girl who was raised on airplanes and who lived in them, was not to be outdone. "We're going through, Edwards, in spite of those clouds; and I'll bet you anything you can blindfold me and we'll get there just as quickly."

During those moments I at first thought how much I had to regret. Then I realized that even if I had broken the story to the government or to the police, nothing would have been done. No one would have given my own ideas any credence. It was an impossible situation, and I had to look it straight in the face. I had one of the biggest stories ever told. It only

remained for me to get to the office of the *World-Bulletin* with it. Previous to the explosion, the story would have been a mere feature mystery story. Now it was a headliner, and it would scream.

CHAPTER III

Captured!

NADINE TILDEN was not excited about the story from the newspaper standpoint. She had followed a hunch from the start, against her father's judgment, and she had been right. She feared something was threatening the aircraft industry. What was behind it no one knew, but one could see, if he were in our position, that it was dangerous, to say the least. Those tiny instruments—machines—whatever they were, acted as attractions for the dirigibles, which bore terrible explosives. The small airships, loaded with explosives, were dispatched from some point south, and each was "tuned" to one of those instruments, to which it cut a path through the sky. Arriving over the machine to which it was "tuned," it simply descended at an abrupt angle and the explosives were set off when it touched the first solid object.

"There's something big behind all this Edwards," Nadine breathed furiously as we dived into a cloud.

"I was just debating with myself whether or not it was some crazy maniac, or merely an initial attempt of a hostile nation to disable our airplane industry," I answered.

We were flying through that thick cloud, our eyes searching for the city which should have been before us. We flew for some minutes straight ahead before we became anxious. But I trusted Nadine's skill at navigation. Still, when we should have been home we were cruising southward, although the compass reading appeared to be accurate.

We both became anxious until we saw a streak of light appear off there ahead of us. When we flew into that, the moonlight shone upon us, but there was no city below. Instead, we were over the Pacific ocean—just where, we did not know. Nadine gasped. I hurriedly checked all our navigating instruments and tested the compass while she performed a series of maneuvers to enable me to determine the cause of our having passed over Los Angeles.

"Why, we've never been over Los Angeles, Edwards!" she almost shouted in despair. "We've been tricked—" Our eyes were searching the sky together, to learn the cause of the deviation in the compass. And suddenly out of that clear sky above darted a strange craft, which hung over us as Nadine held on the stalling point, and studied us. It was a small dirigible, made of transparent material, and four men were aboard. One of them sat aft in the tiny cabin and watched us. He appeared to be handling a radio key of some description, for when he waved his hand at us and yelled, "Now watch your compass," I saw the needle of our instrument fall back to a position opposite to what it had been, and then I knew that we were in the hands of an uncanny enemy. Looking at him again, I saw him grin broadly and nudge one of the others. They all looked around at us, and while the moonlight played upon them I could see that one of them was Gastro, Nardine's trusted employee in the factory.

WELL, what'll we do now, Edwards?" demanded the girl at my side.

"I suppose we'll have to wait for orders," I said. "It appears that we're outdone."

We were outdone.

The small airship hung over us a bit closer, her oval bag glistening in the moonlight and her almost noiseless engines turning over just fast enough to hold our speed. Then Gastro pushed his head through the cabin window and said without ceremony, "You two follow us!"

"But my compressed gas will be gone!" Nadine shouted at him. "What do you want, you big stiff?"

Gastro studied us for a moment, contemplating the little plane, and then he said with finality, "I'll throw a flexible ladder and you two come aboard." He turned and picked the ladder from the deck of the cabin and unrolled it down toward us. Nadine looked at me.

"Are we—are we going to give up?" she demanded.

"What else can we do?" I asked. "I have no weapons, and if I did they would be of no use. This outfit means business."

She did not speak further, but pulled slightly back on the control stick until we were touching the ladder She turned the plane over to me and started climbing up. When she was safely aboard, I placed the controls in beckets and followed. Inside the cabin we faced Gastro and the other three, all of Latin blood, all watching us as we waited for them to speak. Nadine's plane fell off into space and hurtled earthward.

"You are about to take a long, long journey," Nadine's former employee said with a grin.

"And I trusted you!" exclaimed the plucky airplane builder's daughter. "What's the game anyway, Gastro?"

"I'll explain when we have arrived at headquarters," Gastro answered. He waved a hand at the man who controlled the ship, and we were suddenly speeding through the night. Then he took one of the seats opposite us and said, as he made himself comfortable, "You certainly caused our cruisers a lot of trouble, when you found all those instruments and stored them away. We have explosive bearers all over the sky and they're out picking them up. It wouldn't be safe for airplanes higher than four thousand feet, with those things hanging about and no place to go."

"Then we were right—each of those instruments was adjusted to attract an explosive bearer?" asked Nadine.

"Yes," said Gastro, "but you spoiled it. When the first explosion took place it destroyed the attraction for all the other explosive bearers we had put into the air. You see, today was our day for action—the first attempt to gain control of America. The fact that you have killed our attempt to destroy the most important airplane factories on the coast has delayed us. We intend to destroy all the cities at once. Consequently we are going back to headquarters and start all over again."

"Control of America!" Nadine shouted, breathing furiously, her eyes gleaming. "You mean to destroy all the important industries of the finest country in the world—to make a ruin of our civilization and kill millions of innocent people?"

"I'm not responsible for it," Gastro answered. "The general of the Invincibles is the planner of all this; I am only one of his thousands of men."

"Who are the Invincibles?" I asked, suddenly conscious of a chill running down my spine.

"They are men who see the need for a change in the affairs and systems of the world," he answered calmly. "Some of them are scientists. You will agree they must be, to accomplish what is planned—the wholesale destruction of the cities of the world overnight, without risking a man."

"Nothing Can Stop A Tilden!"

WE were silent for several minutes after that. I pulled Nadine closer to my side and we looked into each other's eyes, neither daring to speak. I pictured horror and destruction taking the place of the plan and security of the world we had known. Truly this was the wrath of the gods, if anything had ever been; and the selfishness of men and the instinct to draw blood were usurping the place of peace and prosperity.

Overnight!

Of the millions who slept at this moment peacefully unaware of the coming of destruction and want and death, not one believed he had cause to fight a mortal foe. War had been out-

lawed, but in its place had come the modern Napoleon such as this leader of the Invincibles. It was inevitable, with the advent of great scientific knowledge and the persistent will of whoever had the blackness in his heart to misuse it.

Sheltered off there somewhere, perhaps in Mexico, the general of the Invincibles had a stronghold filled with high explosives, perhaps thousands upon thousands of these aerial torpedoes, or explosive bearers, waiting for the fateful hour that no man knew save himself.

Gastro spoke again.

"After you had detailed me and those men to gather those explosives and have them stored in the abandoned house, I talked to headquarters and had them send one heavily-charged torpedo to destroy them. Otherwise you would have informed the newspapers. Then when we got a chance to draw you away by our compass magnet we held high stakes again. You and old man Tilden are the only ones outside the Invincibles who know of our work and the young lady's father is safely in our headquarters. We shall arrive there by and by and you will be more comfortable than aboard this heaving little shell."

There is no need to go into details as to what Nadine said to Gastro when she learned of her father's capture. She did not take it calmly, but one can expect a woman to talk more than a man at such times as this. In this instance, the occasion certainly warranted more than speech; for Nadine loved her father more than anyone else in the world. He was a gruff old fellow and all that, but at heart he was kind and considerate. He was a distinct personality. One could never forget him.

There was an instance of Tilden's originality and grit when the old man had raced his first plane to Paris against Fokkers and Fords, airplanes that had decades of experience back of their construction, and won out, stopping in Paris only for gas and continuing on around the world, arriving home on the fifth day—four sleepless nights of storms and heat and cold and bumpy air! Nothing could stop a Tilden. I told Nadine as much as we sped toward the stronghold of the Invincibles.

"No. Nothing can stop a Tilden," she breathed.

Those words should, long ago, have been the slogan of the Tilden Aircraft Company.

CHAPTER IV

The Stronghold

AS I sit here today and write about that evening when we were taken aboard the little transparent dirigible with its silent motors, I look back to other days when I thought the world needed changing. There were times in my youth when, if given the power, I believe I would have undertaken a conquest of the world, although not with the purpose of destroying human life. Those were the days when as a lad I walked in and out of newspaper offices and in and out of the hearts of young and beautiful maidens who could not believe me what I believe myself to be—a conqueror of the world, my own and their world—and found myself disappointed and sick with life. The years had changed me and as I sat there with Nadine, herself ten years younger than myself, I realized that here of all places and now of all times was my opportunity. And yet I was as much bewildered as in the days when I had failed to conquer the world I wanted, for the odds were more against me now. But I had more of an incentive than ever before: the world must be saved! The entire world must be saved from destruction by the Invincibles!

The Invincibles were risking nothing but dollars. Even though the world were to be warned, it was helpless. The instruments which were designed to attract the aerial torpedoes were scattered throughout the cities of the world—New York, Chicago, St. Louis, New Orleans—all must fall under the hand of that terror which would strike in the night.

And we were six people in a tiny airship, bound for the stronghold of the Invincibles, and to what fate we did not know.

For three hours the little dirigible with its oval bag and singing motors wended its way southward. Presently we struck the Mexican coast near the tip of the peninsula of Lower California and the man at the controls eased down on the speed. Far off below us loomed the hills and stretches of sagebrush-clad desert land, the silent picture of desolation that might have been painted on a great canvas, so alluring and wild was it.

We lost altitude with the speed of an airplane despite the apparently cumbersome bag, and finally flattened out over a narrow valley where we could see a single small building at the foot of a hill. The man at the controls headed for this and presently we were hanging on our "prop" at the front of the structure. It was a mere shack, but it had a door wide enough and tall enough to admit the airship, and two men appeared to take our tow-line and pull the craft inside. They closed the door behind us and one by one we followed the orders of Gastro and got out.

In the silence of the next few minutes, Nadine and I looked around us. We were in a great cavern in the side of the hill. As far back as the eye could see the walls, tiny electric lights gleamed, and I observed a runway to a curve in the cavern. Having secured the airship, Gastro stepped beside us.

"You young people follow me and don't bother about asking questions," he said gruffly. "You won't see the General yet, but Miss Tilden can see her old man."

NADINE'S excitement was such that she hugged me closely and gave Gastro an almost worshipping glance.

"I'll bet Dad is so ruffled that he could boil the General in oil and eat him," she told me confidently. "You see, Edwards, no one has ever bossed him. The most tearful and yet the most comic picture I could conceive would be of Dad in the hands of a guard—in a prison. He'll find a way out."

We were walking along the runway. We came to the curve in the walls of the cavern, and then saw another great room in which were stored thousands upon thousands of the tiny aerial torpedoes, many of which were disabled and helpless since the destruction of the instruments to which they were adjusted. I thanked my stars that we had destroyed them and that there was time yet in which to warn the world of impending danger.

The whole world to face destruction—Overnight! Not a warning, no chance for escape but wholesale murder and arson—war in its most cowardly form. Perhaps a mere handful of the population would be left in the cities, and without the cities and their great airplane factories and industries to serve the outlying territories, the world would face utter ruin from which it would never recover.

We entered the residence of the Invincibles at the other end of the cavern. A few scattered guards held the place and looked at the six of us with curious eyes as we went on into the room where the Invincibles held old man Tilden prisoner.

Tilden Protests

NADINE uttered a cry and ran to the old fellow, kissing him and holding him to her heart, and there were tears in the eyes of both. He was silent until he looked up to see me standing there; then his eyes gleamed brighter than ever, to my intense relief.

"You two kids gave 'em a fight! That's the Tilden in the girl, and as long as you were with her I suppose I can credit you with some of it, you yellow journalist!"

"The credit for anything we have accomplished goes to your daughter, sir," I told him. "But it appears that as for ourselves, we are helpless."

The old man did not answer. He glanced at the guards and at Gastro who stood above him. Tilden's hatred for his former employee was too great for words. He could only stare help-

lessly at the renegade until Gastro strode away without a word.

An orderly showed us to tiny rooms, without comment, and went his way. We then sat down to discuss the situation before us. Old Tilden showed more fight within the next three minutes than I ever believed was within a man. I could see him again at the controls of the original Tilden *Twin* winging his way around the world against storm and wind and time, and fighting the elements for the love of the game.

"We're not beaten, kids, not by a long sight! We've only started. The General sent word to me—I haven't seen him yet—saying that he would strike as soon as he could plant his attraction instruments throughout Los Angeles and San Francisco again. You see, while you were on your way to 'Frisco I telephoned the Rickman-Conroff factory and told Rick to keep an eye out for more of those confounded things. But while I was sitting at the telephone, these"—Tilden spat the words—"these Invincibles got me. They put me into one of my own ships, the jelly-hearted thieves, and brought me to within a mile of here. And now I'm a prisoner. In these days of freedom and peace, I'm prisoner of a contriving gang of murderers!" He yelled the last words and banged his fist upon the metal table before us.

Nadine kissed the old fellow on the cheek and tried to induce him to go to sleep. He arose, instead, and paced the floor, cursing between his teeth, his rage beyond his control.

"'They've got us, Edwards! The whole world is facing destruction! These murderers will stop at nothing! Why—why it's so damned unreasonable and yet so inevitable that the government should have been warned ten years ago! I always said it wasn't safe for some men to have too much money!"

ABOUT us in that great cavern which had once been a mine, were machine shops, electrical apparatus, and storerooms and shops. There was a large dormitory across the tunnel, and inside them men were whiling away the time playing games and skylarking. One glance into their midst and I could see that they were of the cut-throat type, the riff-raff of the world. They were mostly Mexicans and Italians of the lower class, men who were unused to the American standard of living and who did not realize the horrible results of what they were about to do. That they were ready for a conquest of the world without risking their own lives was evident; hundreds upon hundreds of those small dirigible-torpedoes were waiting, powered by tiny motors. We were to learn later how they operated.

Only Nadine slept. Her father and I sat through the night conferring in whispers and racking our brains in an effort to think a way out of this horrible state of affairs. No solution of the problem came to us, and we were still talking when Nadine awoke. She stared about her for a moment before she could recall the circumstances surrounding her presence here. Finally she sat up quickly to stare at a man who opened the door leading into our room. Another man followed with a large tray of food, which he placed on the table in silence. They went out together, and we proceeded to have breakfast.

When the man who had first opened the door returned to the room, he was smiling, and said:

"All three of you are to follow me to see the General. You must not irritate him. He did not not wish to be handicapped with prisoners. You must obey his orders at all times."

"The sneaking thief!" stormed Nadine's father. "It would be just too bad for your general if I could put on a pair of old fashioned boxing gloves with him! One day we're living in peace, and free to go where we please, and the next we're in the hands of a low-brow scalawag who's trying to kill off the race!"

The General

NADINE hushed him; and we proceeded through the tunnel to another room, into which we followed the leader. A little man with a lean face and red hair was lounging in a dressing gown and smoking a Russian cigarette. He got up from his chair when we entered and smiled at us—this smile was directed at Nadine, although at the time I did not realize it. Then he took a chair opposite us at a long table and sat looking at us for some time before speaking.

At last he said: I didn't want a single prisoner, but perhaps three won't worry me. Being the only people within the ranks of the objective to know anything of our attempt, you had to be taken prisoners. You will remain here, but you must obey orders. Otherwise . . . " He shrugged his shoulders significiently, indicating that we would suffer greatly if we failed to comply with his demands. Then Nadine spoke.

"Mr. General, have you any particular grudge against the world that you would destroy our people and our greatest cities? Doesn't it occur to you that these millions of people wish to live more than you perhaps do? We come from one of the finest cities in the world. Our people are happy and they are fine and beautiful. They have arrived at a magnificent mode of living after years of struggle and strife and change and experiment. Now that they are on the right path, with their presence upon this earth justified, would you kill them like ants? Would you ruin the civilization that came of the life blood of our people who saw and extinguished the name of war? Can you take these precious lives without giving them a chance to fight—"

"That's modern warfare" the General put in. "However, we shall not go into that. Your speech is magnificent, as is your face, but it cannot interfere with my high purpose."

"High!" exclaimed old man Tilden, "You say 'high'? Why, you damned cut-throat, I'll wring your neck before I'll listen to it! I'll . . . " He was stamping his foot and banging the table, and we could not force him to stop. Only his own common sense told him to desist, and that was when a threatening guard stepped into the room.

CHAPTER V

The Secret of the Invincibles

HE sat down again. The General continued.

"All the larger cities of the world will be in our hands within ten days," he boasted. "We have planted our instruments in New York, Chicago, London and Tokyo—all of them shall fall at the same time. We have bases throughout the world, and most of them are as strong as this one. At the set hour of conquest, each is to send aerial torpedoes forth on the mission of destruction. A warning to the remainder of the population will secure their allegiance to our cause."

"It wouldn't if they were Tildens!" said the old man, his teeth clinched and his eyes looking through the General. Nadine attempted to hush her father, but the old man ignored her pleas. He got up from the table and walked back and forth across the room. One hard glance at the guard and that worthy disappeared through the door. The General motioned for Mr. Tilden to reseat himself, which he did with hesitation.

"It is useless for you to resist me," the General said. "You cannot induce me by any means to abandon my high purpose. This is a most notable venture—a conquest of the world, and it is made possible only through the fuel-less motor."

The three of us gasped at the last two words. The General smiled and nodded. "Electro-magnetic-perpetual! Sensitive radio devices and T N T.! No risk of life and limb—robots of the air—The Invincibles!"

We were silent. This was a serious moment. The world lay in the hands of this conqueror who would murder the population without warning

"But why don't you—well, sort of hold up the world—warn it before you do what you are planning?" Nadine suggested.

"Yeh, give 'em a chance!" the old man put in.

THE General shook his head.

The plan wouldn't work. A few years won't make any difference in the lives of these people. It will serve our great purpose better if they are cleared off the earth now, and give the new race an opportunity."

"The new race—!" Nadine gasped.

"The Holy race," answered the General. "When we have conquered the world we shall establish our people under a new plan of government. Those of us who live in the cities to be destroyed are to leave those cities. This is October the fifteenth. In 1935 our King designated the twenty-fifth of this month as an annual International Worship day. On that day, without knowing why, and thinking themselves on pilgrimages, all our own people will walk or ride or fly to safety in the wide spaces of the country. Then shall the Invincibles change the destiny of the world!"

The old man was upon his feet, speechless, his hands clenched together, the veins in his face standing out. There was ten times more Tilden in him during those moments than there had been in the hour when he stood before the Senate in Washington and told of the profiteering in airplanes sold to the government. "What a Hell of a man is Old Lawrence Tilden!" had rung into the ears of more than a few pilots and leaders of the aviation industry. Now helplessly gathered into the net of the Invincibles, he was a child. His eyes were filled with tears, his teeth were set.

The General waved a hand for us to follow the guard. We walked out in silence. The cavern echoed the activity of the mechanics who were working on the torpedoes and fuel-less motors. Myriads of electric lamps glowed throughout the great rooms. Thousands upon thousands of the little ships of destruction hung side by side above us, held there by the gas in their bags. At their noses were tiny propellers, while on the tops were antennae for connection with the instruments, each ship adjusted to its own tiny box somewhere in a far off city.

We had nine days in which to act.

Nearing the Hour

I LOOK back over the days since the hour at Kitty Hawk when Harold and Wilbur Wright flew a front-porch-looking contraption a few inches into the air. I see Ruth Law later looping the loop at county fairs. Men with tiny hornet-like ships are pouring hot lead at each other over Belleau Wood and the Argonne—

"The roaring, bustin' streak of Hell
That breaks its cloudy unmarked way
Through gas and flame and shrieking shell
Where something always is to pay
The broken strut—the piece of steel
That stays his hand to level down—
The tracer slug that swerves his keel,
And sends him hurtling to the ground.

The major ordered photographs,
The Skipper said to bust a kite,
And ten pursuits were trailing aft
To see he wasn't home that night—
He slipped—he dived—he led them down—
A blind spot in the thick of fight—
Machine guns cracked—He pulled around—
The one pursuit was home that night!
This war's a game of Hell and flame—"

I saw Smith and Nelson and Wade in their odd but efficient Douglas cruisers, wending their way around the world. The field from which they started on that brave adventure was within a mile of my home. I saw Lindbergh, the pride of the world, flying on to a glorious victory over time and gravity and space and fog and wind and rain—All these blazed the trail to a new era of comfort and speed in transportation, bearing the torch of peace and progress as they went.

They helped to end war. They established good will between the civilized nations.

Now the world had to deal with an unseen enemy, the hand of avarice and superstition and ignorance from across the seas—the Invincibles! It was not beyond reason that the individual, the element, sect or creed, could gather enough money and the tools with which to accomplish a conquest of the cities of the world.

On the eighth day after our incarceration within the cavern, men began taking the tiny torpedo-dirigibles from their berths and filling their noses with explosives. This was the twenty-third of October. Two days more, and the world was to lie in ruins.

WE made the best of the time. For a week we had studied the torpedoes, the men and their work. We knew that to turn a switch inside the compartment of a torpedo caused the propeller to revolve. The movements of the stabilizer, elevator and rudder seemed to be governed by outside agencies, the tiny and delicate instruments inside the boxes that were hidden in the cities

We had been fed well, and were unmolested, and we had been permitted to see the preparations made by the hundreds of men who worked over the torpedoes. Now and then one of them came to talk with us. Our guard even allowed us to walk among them.

Mr. Tilden had become quite resigned to this threatened destruction of the world. His rage had subsided and he talked quite freely of the past and what would become of us when we were again released.

"Dead world—no hope, baby," he would say to Nadine. "Too bad you kids couldn't enjoy life in a free country. Means more than the people think. By God, I always said Brisbane was right—prepare for defense. But the elements back of this wholesale murder played around Washington and lobbied bills against aerial armament, posing as pacifists, and the people swallowed it. Propaganda that comes in sheep's clothing. I always wondered what became of the fuel-less motor. . . ."

CHAPTER VI

Gastro Revealed

ON the morning of the day when the torpedoes were to be dispatched from the different bases of the Invincibles, Gastro became our guard. I'll never forget the rage of old Lawrence Tilden when he came into the room, his eyes avoiding ours, his two automatic pistols gleaming from the holsters at his sides.

The old man cursed him, but Gastro made no response Nadine studied her former employee with intent speculation. As for myself, I was as anxious as Mr. Tilden to fly at his throat, but that would have meant only death; and I had not believed that I could be so unfortunate as to die since that morning when I walked into the Tilden office and was informed that strange things were going on in the factory. I now wondered, as did Nadine, what the world thought of our disappearance. Even if it knew of the impending danger, nothing could be done. I told her father so.

"Something could be done, Edwards," he said. "That's what I've been thinking about all this time. I have the plan in mind, but we can't warn the world. That's where the plan is a failure."

"What is the plan, dad?" Nadine questioned.

The old man smiled. "It's simple: If every high-powered radio station in the world would transmit, at once and all together, on the same wavelengths that these bandits are using they could scramble the air and kill the controls that guide the

Invincibles. Then if the torpedoes were put into the air they would hang there—keep traveling, with nothing to guide them. They would endanger air travel, but they would not descend. Do you get the idea?"

"I do," I said with enthusiasm. "Now, how are we to warn the world?"

"We may not be able to do it—we're in a tight place, but nothing can stop a Tilden," he whispered. I suppose I worshipped the old fellow after that. Nothing would ever stop a Tilden.

The morning of October the twenty-fifth came. The hundreds of men arose early and began lining up the torpedoes, one by one, to face the door at the entrance of the cavern. Those which were destined to reach the cities farther off were placed at the front. Some were dispatched to New York and Boston while we looked on.

There were swarms of the tiny ships, hundreds upon hundreds of them crowded into the runway. Not one propeller turned until the ship reached the opening. Then a man turned a switch inside the torpedo-dirigible, and it sped forth on its mission of destruction. Ten hours later, in darkness, it would descend upon a great city, and play its part in laying it in ruins.

THIS was our zero hour, but old man Tilden was busy. I had not believed it possible to do anything for the salvation of the world, but just as nothing had ever stopped a Tilden nothing would hinder him now.

Gastro was our guard that morning. Nadine had always ignored him, and he wasn't exactly pleased about that. But he had been civil to us and had never denied us a single comfort. Thus, when the old man asked for a cigar that morning, Gastro accompanied him into the smoking room near the entrance. Nadine and I were left to sit in the main dormitory, with men watching us. I was somewhat surprised when an orderly approached us and asked us to follow him to the smoking room, near the entrance to the cavern. When we arrived there, Gastro opened the door, and the orderly walked away. Both the old man and Gastro were smiling. They were confused a bit, but in their eyes one could detect a change of attitude toward each other. They whispered the tidings to us.

"Gastro's no traitor—he's working for the Secret Service," the old man whispered. "He hasn't been able to notify the government of the date for the destruction, so now it's up to us. When Numbers 6 and 7 torpedoes for Los Angeles leave here the only T.N.T. they'll have aboard will be two Tildens and one reporter who can tell a whopper of a story when he gets back to his paper!"

There was no time to lose. The torpedoes had been dispatched so fast and with such precision that our craft were just down the line. Gastro whispered instructions to us, and hurried out the door into the narrow passageway through which the torpedoes were dispatched.

"None of them have reached their destination yet," Mr. Tilden whispered. "Those men out there trust Gastro. He was compelled to go about it this way. He left Numbers 6 and 7 Los Angeles empty, and there's room for two people in each. You and my daughter may go in the first one—" He stopped short. Gastro re-entered the room and motioned for Nadine and me to follow him out. He had relieved the guard at the door and it was now his office to dispatch the torpedoes. By a ruse he had sent the other men back down the line and out of sight.

We climbed into the narrow compartment of the torpedo. Nadine was breathless. Gastro turned the switch and the propeller began turning over. It attained the necessary speed, and shot forth into the daylight. For a moment we were blinded by the glare. Then we looked down. We were traveling at over two hundred miles an hour, and Number 7 was following us. It came alongside in silence, and we saw Gastro wave a hand.

Number 7 checked speed. I looked about for the switch and found a speed regulator just below it. Thus we sped along, side by side, bound northward, for over an hour. At the end of that time we saw beautiful San Diego below us. Nadine looked down upon that city for a moment, unconcerned about her own predicament, and she said, "We've got to save it, Edwards! Let's go down now!"

The End of the Menace

I CHECKED speed, reached on top and tore the antenna from its base and threw it to the winds. Then with much caution, I worked my way back to the steering apparatus and disconnected the rudder and stabilizer lines from the machinery. With a quick lurch I felt the torpedo plunge downward toward the city, I tried to steer it properly, but so great was the effort required that only luck could have saved us from death by plunging to the ground. When the craft leveled off she was a few feet from the housetops near the center of San Diego. We saw the Naval Base, and steered for that. Before wondering eyes, we landed before the executive offices of the flying field and crawled from the compartment to explain hurriedly to the commander what was about to happen. He pulled us into the radio room and snapped an order to the operator, "Turn on all your power on the big set, and tell Number Two to broadcast a message to the world that it's in danger. Don't waste a second!"

Then the commander came out, smiling. "It seems quite improbable that anything like this could happen, but we can't take chances. Furthermore, I must give your story some credence, since three of our flyers reported they saw a strange contraption at a high altitude. They tried to overtake it, but it was flying too fast for them." He looked up into the sky. A torpedo was circling the field. He stepped back, startled.

"There's one—meant for us!" he snapped.

"Don't worry," said Nadine. "That's Number 7, and my father is aboard."

Number 7 landed on the field and Gastro and Mr. Tilden got out and joined us. Re-united, we were filled with joy. I forgot everything about the newspaper until the operator came to inform the commander that he had warned all stations, and that they were all going to broadcast on a wavelength that would "scramble" the air and prevent the radio controls of the torpedoes from operating.

"There's going to be a panic in this country or I'll miss my guess," the commander said. "No one will want to be within a thousand miles of those torpedoes."

He ordered a plane, an immense patrol-bomber, and we boarded it. Nadine sat beside me near the radio-phone while I called Spencer and experienced a long-distance reunion that I shall remember all my life. I told him the story in as few words as possible.

"There's a thousand bonus in it for you and a better job, son," he screamed. "I'll make you the biggest reporter in the world—I'll—" He went on to praise me and the story that came of misfortune, and I had visions of headlines six inches high, with thousands of extra men in the streets. Gastro would be made a hero, and the plotters would be hunted down.

* * * * *

CRUISING at ten thousand feet, we saw a number of the torpedoes hanging there, motionless. Their delicate instruments were powerless. We learned that plans had already been started to keep the air scrambled until the torpedoes could be led out to sea or far from civilization and there be allowed to explode.

We landed at Los Angeles Metropolitan airport and were taxied into the city. Delegations met us and speeches and banquets followed. It was hours after the great demonstration

before we had any privacy and then Mr. Tilden, Nadine, Gastro and I were cornered by a mob at the Biltmore. We declined to say anything more about the affair, until Spencer edged his way through them and closed the door. He had a notebook in hand—the old reporter again, and he was asking questions faster than we could answer them. In the end, he told me I could name my own figure and take any job the paper offered. Then old man Tilden stepped up, chewing his cigar, and he said to the city editor:—

"No son-in-law of mine is going to be a newspaper reporter!"

Strangely, during those ten days I had never thought of what he was trying to get over, but its full significance dawns upon me daily, now, and I haven't the slightest regret at having accidently fallen into a plot to destroy the world. The paper had not thought of what was really behind the great explosion on the Tilden ranch.

I don't recall that there has since been any attempt by adverse, foreign elements to destroy America, or any other nation. For the Invincibles were followed to their strongholds and either killed or captured. And to this day the world looks back with horror and fear at the menace that was contained in some harmless-looking black boxes.

THE END.

The Tragedy of Spider Island

(*Continued from page* 333)

Myra grasped the tube and sped away. The spiders were only a few yards from them and were approaching rapidly. Dr. Collins turned to Webster.

"The way is clear, Webster," he said, "or will be in a minute. Run for your life and take Myra to safety. I'll stop these fellows."

"We'll both stop them, Doctor," said Webster grimly, "if we can."

"Run, you fool!" gasped the Doctor. "I have brought this danger on us and I will stop it. Listen, man, I am dead already. Haven't you seen for the last two months that I am doomed? I have only a few weeks left at best and a run to the boat would kill me. My heart is rotten clear through. Run, Bill, Myra's life depends on your action!"

Webster hesitated a moment and the Doctor with a shout rushed at the nearest spider. From behind him, Webster heard the sound of Myra's approaching footsteps.

"Daddy!" she shrieked, "Oh, Bill, save him!"

Webster ran after the Doctor but he was too late. While he was still twenty feet in the rear the Doctor met the first spider. He threw himself on it and for a moment it looked as though he would overcome it but in the instant of victory, he swayed and fell, his face suffused with purple. Another monster sprang through the air and landed on his back and Webster saw the slavering jaws close on the hapless victim's neck. He turned and ran back toward Myra.

"Is he ——" Myra faltered.

"He is dead," he said softly. "We must hurry or his sacrifice will be in vain."

The last web had wielded to Myra's ray and the path to the boat house lay open before them. At top speed they raced toward it, the spiders close on their heels. Webster unlocked the house and followed Myra inside with their pursuers not a dozen feet away. He slammed shut the door and turned his attention to the motor. In a moment it was roaring and he braced himself to open the water door.

"Take the wheel, Myra," he said. "Race the engine at top speed and when I open the door throw in the clutch and go out as fast as it will travel. I'll jump in as you pass. Those spiders are waiting for us."

Myra took the wheel of the little craft and as Webster threw open the door she let in the clutch. The screw beat the water unavailingly for a moment and then the craft gathered headway and shot out through the opening, Webster jumping in as it passed. They were not the only passengers for as the boat shot away from shore one of the huge spiders launched its body through the air and landed in the stern of the boat. Webster threw up his shotgun and fired both barrels. The top of the spider's head was torn away by the double charge but it still advanced, its one remaining eye gleaming balefully.

Webster jumped for it, boathook in hand. The jaws had been crippled by the shot and he rained blow after blow on the loathsome body until only a spasmodic twitching movement remained. With a grimace of disgust, he caught the body with the boathook and with an effort heaved it over the side.

"That's the last of them, thank God!" he exclaimed.

He advanced toward the bow and took the wheel from Myra. She relinquished it and swayed a moment and then sat down suddenly.

"Are you hurt?" he demanded anxiously.

"No," she gasped, her lips quivering, "I'm—I'm—only—tired."

She swayed slightly and Webster dropped the wheel and caught her. She relaxed against him and the weight of her slim body in his arms broke down the wall of resistance he had raised against her. He crushed her to him and pressed his lips against hers. He released her in a moment and raised his head, a flush mantling his cheek. He had not meant to take advantage of her helplessness.

"Bill," came her voice softly, "do you love me?"

For answer he grasped her and kissed her again and again. Her arms stole around his neck and her lips returned the pressure of his. Unheeded by them both, the launch tore on at full speed through the blue waters of the Pacific.

THE END.

A Rescue in Space

(*Continued from page 355*)

widened with joy.

"I understand, my children, and you have my blessing," he said simply. "Now according to Martian law the marriage must take place at once. By virtue of my high office I will perform the ceremony."

And when a moment later the assembled thousands became aware of what was going on, a great shout of thanksgiving and exultation arose—high above the roar of the burning monster it rose, gathered in volume and reverberated over land and sea.

As *The Spectacles* fell apart and rolled down the steep rocks, a mass of blackened, tangled wreckage, the marriage was performed.

Thus travel between Mars and the earth began.

THE END.

"FUTURE FLYING FICTION"

In the February 1930 issue of AIR WONDER STORIES we announced an unusual contest — $100.00 in gold was to be given for the best slogan that would describe AIR WONDER STORIES and its contents.

The contest closed at noon on May 1, 1930, and at that time by official count we had received 3,860 entries, together with accompanying letters giving the reason for the choice of the slogan.

Naturally the classifying of all these entries, the arranging of them into grades so that the winners might be picked was a monumental job, particularly because so many of them were so good.

Then came a series of editorial conferences in which the editors and the publisher gradually weeded out the better ones, in order to finally pick the winner.

The job was not easy; but in the end an almost unanimous agreement was obtained on the selection of the slogan, *"Future Flying Fiction,"* submitted by J. Harris, of 9 Tavistock Square, London, W. C. 1, England. Naturally as AIR WONDER STORIES has been merged into WONDER STORIES and the slogan *"The Magazine of Prophetic Fiction"* has already been chosen for WONDER STORIES the AIR WONDER STORIES slogan will not be used. However, we gladly offer the prize to Mr. Harris in conformity with the terms of the contest. The letter of Mr. Harris follows:

Editor, Slogan Contest, AIR WONDER STORIES:

My reasons for choosing the attached slogan are the following: The three words make it short, sharp and distinctive. It says no more than it means, but that it says clearly. It can be used either on the cover or as a subtitle on the contents page and it is not too long to appear as a secondary title on a small poster.

It is self-explanatory and should catch the eye of persons who are looking for a magazine of that kind.

The three F's also have an alliterative value in themselves.

Yours sincerely,
JOHN B. HARRIS,
9 Tavistock Square,
London, W. C. 1, England.

AIR WONDER STORIES
$100.00 SLOGAN CONTEST
Won by
JOHN B. HARRIS
9 Tavistock Square, London,
W. C. 1, England
for his slogan
"Future Flying Fiction"

Among the honorable mentions are the following:

"Aero Fact in Fiction," submitted by Charles B. Davis, 812 Grainger Street, Fort Worth, Texas.

"Fact—Fiction—Future Flying," submitted by James M. Cox, Cleveland, Ohio.

"Flights of Fact and Fancy," submitted by John A. Savage, 3rd, 73 West 130th Street, New York.

"Thrilling Stories of Future Aviation," submitted by Peter Cook, Little Falls, N. J.

The War Lord of Venus

(*Continued from page* 309)

I attempted to pursue him, but after a few yards of aimless running my senses again began to reel, even more giddily than before, under the combined efforts of the blows on my jaw and the back of my head. I returned to the large clearing which I had crossed just prior to my encounter with the Karnan chief, and here I found Deena. I felt sick and groggy, so I lay down on the grass and drifted into oblivion.

I returned to consciousness while four warriors crowded around me, Deena bathing my face with water which one of the men had procured.

As my eyes opened Deena smiled.

"You were very brave to pursue Torag and fight him when he was armed and you were not," she said.

"I beg to call your attention to the fact that he did not draw a knife while we fought, Princess. And anyway, my bravery would have helped me but little had not your warriors come when they did," I replied.

"How did you happen to pop up in time?" I asked them, addressing myself to one of the men.

"We were just going out to hunt when we came to the clearing and heard you fighting. Lago, here—" he indicated one of his companions—"happened to see your clothing once, so we came to your assistance. Our running over the ground must have frightened Torag away."

I rose to my feet, and together we six returned to the village, moving off the direct route a little that we might recover the body of Segoz, the chieftain who had been slain in the small clearing by Torag. Back in the village I spoke to Deena of the matter that had prompted my visit to her throne-room an hour previous.

"I have decided, Princess Deena, to accept your proposal regarding my companion and me. I do not know if he will desire to become one of your warriors, but my mind is made up. Tell me what I must do to be accepted as a warrior of Karna."

The Cave Princess smiled. "I am glad of your determination, for you will make a valuable member of our tribe, and your fight with Torag proves your prowess and shows that you have the welfare of Karna's rulers at heart. In three days I will see you again at my council chamber, and there you will go through the rites. The two men who taught you our language will prepare you for your part in the ceremony."

Some Questions

WITH that she left me, and I returned to my own cave.

The next day the first thing I saw as I emerged from my cave was the figure of Von Kressen, supported by the two girls who had nursed him during his illness. He limped slightly and seemed weak and uncertain of his steps, but he was up and around, and that was the main thing.

With a whoop of elation I charged over to where he stood in the entrance of the Witch Doctor's abode, drinking in with evident satisfaction the light of the swollen red sun that rose over the dim, vapor-veiled horizon.

"Morning, Skipper!" I cried, grabbing his arm and working it like a pump handle till a grimace on his part warned me that it was still sore.

"Morning, Ken," he responded weakly, with a wan smile. "How are you?"

"Fine!" I assured him hastily. "But you—?"

"Oh, *I'm* all right. Be running around again like a kid in a couple of days."

That reminded me of Deena's proposal, and motioning him to my cavern, I told him of the proposition the Cave Princess had made me, of my own acceptance, and asked what he thought of the matter. For some time he sat in silence. Then he shook his head.

"I'm still a little too sick to concentrate on the problem. I'll think it over the next few days and work up an opinion. I'll see you again before your ceremony."

We sat and talked for a while after that; wondered what Throck was doing back in the *Flying Dutchman;* wondered whether Parri still lived; and presently thought of the tiger-skin we had begun to cure at the time of our capture. I determined to ask Deena, the next time I saw her, if her warriors had found it that day. After a time the Von thought he'd better go back to the Witch Doctor's dwelling, as it seemed that only a short time was allowed him on this first venture from his grass bed.

Some time after he had left, assisted by his two primitive nurses, the two men who had taught (and were still teaching) me the language, came to my apartment with the Witch Doctor.

"We wish to instruct you about the ceremony that will make you one of us," one of them informed me. "First we will ask you a few questions regarding yourself; then the *Thayo-Maguri* (Witch Doctor) will make strong magic over you, and you must prepare yourself according to directions."

Of course, this explanation was not just so spoken, for there were many words I had not yet learned, but by signs and simpler words that I already knew, the man conveyed his meaning.

We went into the cavern, and by the dim, bluish light of the glow-fungus, my tuition began.

"What is your name?" asked Vaga, my principal teacher, though he already knew it.

"Kenneth Marx."

"How old are you?"

I was on the point of saying thirty-five, when I thought of the difference in time in the years of our respective planets, and roughly estimating the Terrestrial year to be one and two-thirds times as long as the Venusian, I gave my age as fifty-eight.

The Karnans have no regular measure of time smaller, or larger, than a day; but they have observed that during a certain period in a certain number of days, the great red-orange sun shines clearer and warmer than the rest of the time. They have also seen that during this period certain fungi grow larger and more rapidly, and various other forms of botanical activity are more manifest during this short period than at any other time. So they have an idea of the year,

though it is not so well developed because the thick cloud-veils of Venus preclude more precise time-measurements by astronomical means.

"How long have you been with the tribe of Karna?"

I counted mentally. "Ten days."

"Are you mated?"

"No."

"Do you vow the tribe of Karna and its ruler the strictest loyalty?"

"I do."

"Do you promise your assistance in all the tribe's undertakings, and do you promise to further its strength in every way?"

"I do."

Vaga reflected a moment to see if he could think of any more questions ere I was accredited eligible for candidacy to warriorhood.

"From what tribe do you come?"

"The United States of America," I answered, wondering what he would think if he glimpsed the size and civilization of my "tribe."

"Where does it lie?" he asked next, though it was apparent that he did not fully comprehend the answer to his last question.

"Farther, much farther away than the uttermost shore of the greatest sea that touches your land."

There was a minute of silence while they let that sink in. Evidently that was a tough nut to crack, and could hardly be swallowed offhand.

"Are you telling the truth?"

"I am—cross my heart and hope to die," (this latter part mentally in English) I replied.

"How did you come here?"

"My companion and I came here with a great—" I paused—I hardly knew just what to reply—"with a great bird, which does not live on this side of the water."

"This bird carried you here?"

"Yes."

Once more Vaga reflected.

"That is all," he said then. "Now the *Thayo-Maguri* will make strong magic over you, and you must follow his directions to the letter."

A New Warrior

THE Witch Doctor arose from where he had been squatting, and taking a gourd of water near at hand, he made a lot of intricate passes over it, mumbling all sort of unintelligible gibberish, and then dipping a cupped hand into it, sprinkled water upon the walls, ceiling, and floor of our cavern, and upon the heads and bodies of ourselves—himself included. This was the process of washing out any evil spirits who might cling to us or to the cavern. Having assembled these wraiths in the center of the room, he now snatched the bear-robe from his shoulders and proceeded to shoo them out of the open entrance and exit of my apartment.

When the spooks had departed, he shoved a stick into a small sacred fire he had built in the cave while I was being examined, and after making mystic passes over the burning ember, he drew it across the entrance of my cave so that if the undesirable ones should come back they would burn their feet and stay out.

Satisfied that we would have no supernatural interruption, the Witch Doctor took up my part of the ceremony. First he made many passes over me with his hands for the purpose, I later learned, of giving me strength to combat any evil spirit who might choose to possess me. Then he placed his hands on my head to give me wisdom in battle, and next proceeded to give my limbs and body a brief massage to instill physical strength and endurance. Lastly he thumped my breast, so that I might be courageous and loyal.

Then he gave me a little piece of wood, primitively carved into a crude simile of a man, to be hung around my neck by a thong of catgut. After giving me certain directions to follow during the next three days, he signified that the ceremony was over.

I must say that his religion certainly embodied some very practical ideas.

The rest of the day I was given nothing to eat or drink save a swallow of water at sundown. I had been instructed to pray to the gods of Karna that I might become a good warrior, but I am afraid I was not as devout as I should have been.

The morning of the second day I left for a great spur of rock that towered over the treetops bout a mile distant, and on its top I was supposed to pledge my devotion to the spiritual and mortal rulers of Karna.

Coming back to camp in the evening, I received some water for my fare, and then sat up all night with the *Thayo-Maguri* for a companion. The next morning, Nogas, the Witch Doctor, informed me that in the evening, if I performed my duties well that day, I would be initiated into the almost sacred state of warriorhood. The first thing I had to do was change my Terrestrial clothes for a loin-cloth of lion skin. Then the Witch Doctor, four other chiefs, and I, followed by most of the male population of the village, went out to a large natural clearing some two miles from the cliffs of Karna; and there, safe from the prying eyes of any women, I had to run, jump, hurl spears, and by other ways prove my physical ability to go on the war-trail without food for two days.

And then, these tests being passed, the Witch Doctor muttered some final incantations over me, and I was ready for admittance to the warrior class.

Back in my cave I was permitted to break the fast and the silence I had been obliged to keep during the two days of preparation. Shortly after I had eaten, Von Kressen, called at my dwelling.

"Have you reached a decision about my action?" I queried.

"I've been thinking it over," he responded, "and I've come to the conclusion that you did right. In fact, as soon as I am well enough, I think I'll become a Cro-Magnon savage also. It seems to me that it is the best way to get along while we are on this planet."

"Ludwig Von Kressen and Kenneth Marx—Cro-Magnon warriors," I ruminated. Anyway, being a savage was a rather novel idea, I decided, as the Skipper turned back to Nogas' cave again. I snickered as I went into my cavern again, for it struck me as being hilariously funny that two scientists and men of letters such as the Von and I should ever be reduced to the level of naked savages.

(*To be continued*)

Science Questions and Answers

THIS department is conducted for the benefit of readers who have pertinent queries on modern scientific discoveries and on established scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical, also to print answers as soon as we receive questions. However, questions of general interest will receive careful attention. If you desire individual answers to your queries, enclose 25c in postage to cover time and mailing.

Environment and Heredity

Editor, Science Questions and Answers:

I'm glad that you are combining your two "mags" because in the first place the ARE WONDER was not as good as the SCIENCE WONDER, although I hope you will not drop Mr. Chappelow because he was the best author in the ARE WONDER. Second, we will be able to buy all your "mags" now.

Will you please answer these science questions?

1. Will absolute zero cold kill every germ and are there any germs or insects that can live in this temperature?

2. What makes a person's character and habits? Is it hereditary first and environment second or is it all hereditary or else all environment? Will you please explain?

Hubert Lemerise,
850 W. 50th Place,
Chicago, Ill.

(1. According to the mathematical conception of absolute zero it is a temperature in which absolutely no heat resides within the body and therefore all motion of its molecules ceases. Naturally by definition this is a temperature at which no living thing could exist.

2. The two schools of psychologists: one who lays the greatest stress on character development to heredity, and the other to environment have never been reconciled. Those students of our natures, however, who are free to choose, state that it is undeniable that blood inheritance is a great force in molding our characters, and if the traits passed on by the blood are dominant once: that is in intensity—environment will not affect it. Thus a man with an inherited tendency to drink may have it to such a degree that nothing can change it. On the other hand, while we are young, say under the age of seven, our minds are like sponges, receptive to all influences about us, and here the effect of environment [which means association and experience, etc.] makes a deep and ineradicable impression on our beings. Thus environment tends to form habits and traits of character and may form them to such a degree that they override inherited characteristics.—Editor.)

What Underlies the Ultra-Violet Ray?

Editor, Science Questions and Answers:

1. What is the principle underlying the ultra-violet ray? Is it useful. Can it be harmful?

2. What is the exact number of chemicals known to science?

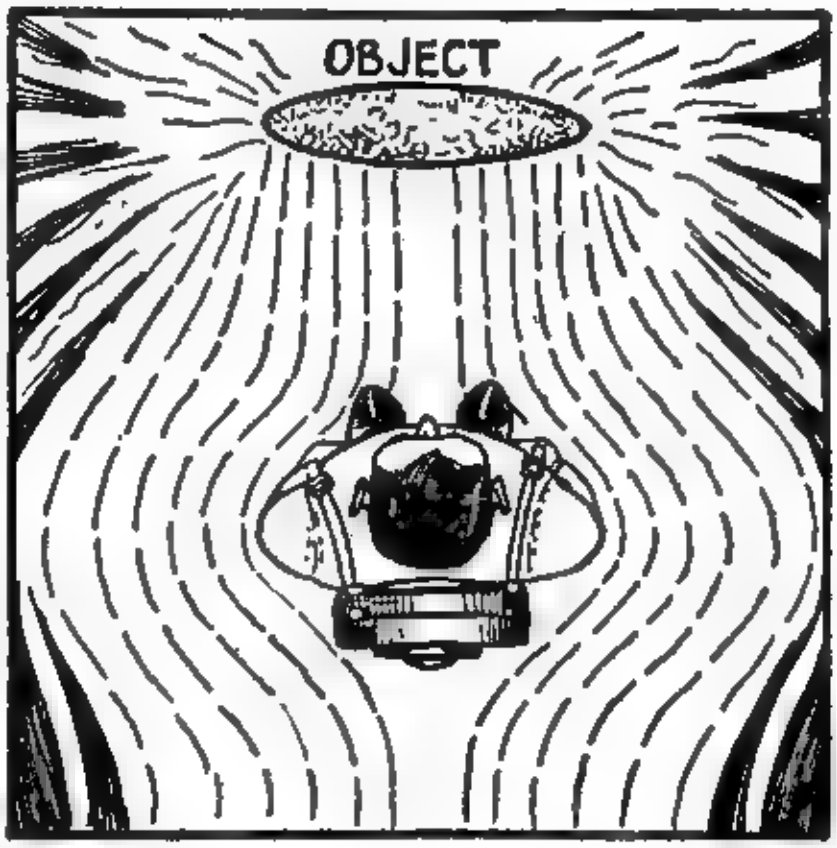
3. What attraction if any does the earth have for other heavenly bodies?

Harry Kestenbaum,
25-22 Steinway Ave.,
Astoria, New York.

(1. In all radiant energy, such as that which reaches us from the sun, there are the visible and invisible waves. The visible we see as light, the invisible is apparent to us as heat waves at one end of the spectrum and ultra-violet at the other. The ultra-violet waves are the short waves of the sun which cause sun burn and tanning. Their effect on the human body is to stimulate cell division, to stir up the skin producing substances that build bone and flesh. Thus, persons deprived of ultra-violet light in one form or another in early life get rickets and other bone diseases. The ultra-violet lamp strains out of the light it emits all but the short ultra-violet rays and thus supplies them artificially. But since their effect is so powerful, their use entails quite a delicate process, and severe burns and even fatal injury can be caused by inexpert use of the lamps.

2. There are ninety-two chemical elements from which all the known substances are constructed. In other words every substance we know is simply a combination in one form or another of two or more of these chemical elements. Such things as oxygen, nitrogen, gold, silver, carbon etc. are all elements. Water is a combination of two elements, hydrogen and oxygen.

3. The earth pulls on every other body in the universe with a force increasing with the size of the body and decreasing by the square of the distance that the body is away. Naturally the influence of the earth on other planets and stellar bodies is negligible because the earth's attraction is completely overshadowed by that of other bodies.—Editor.)



Showing how a person made invisible by bending light rays about him could not see. By his invisibility apparatus, the light rays coming from the "Object" or any object are bent around him. Rays, therefore, do not reach him and he is invisible. But as rays do not reach him, he can see nothing beyond himself.

The Object Could Hit Him

Editor, Science Questions and Answers

1. If an object were traveling toward one at a speed 3 miles per second greater than the speed of light would it seem to be going away at the rate of 3 miles per second?

2. Light is supposed to be curved. If it traveled twice as fast would it be curved one fourth as much?

3. If one were made invisible by curving the light waves around him, would he then be able to see? For then no light would reach him?

Archie Smith,
Williamsburg, Nebr.

(1. Our correspondent is correct. If the body were to travel toward the observer with the speed of light, the light waves would remain with it, and therefore it would seem to remain motionless. But if the body travels faster than the light waves, the later waves emitted [when the body is closer to the observer] would reach him before the earlier [illegible] and therefore the body would appear to recede, in other words waves would reach him continuously which showed the body in its earlier and earlier positions.

2. Our correspondent has possibly a mistaken idea of the nature and direction of light waves. There are two possible ideas that he might have in mind. The first is the conception given us by Einstein that there is no such thing as a straight line. Therefore what appears to be one is only a portion of an infinitely flat curve. Because the universe is curved, light waves really travel in a curved path. If this is Mr. Smith's meaning, then of course the curve of the light rays would be determined by the curve of the universe and not by its speed.

The second conception is that light rays are CURVED FROM THEIR PATH by an electro-magnetic field such as is possessed by the sun. Therefore the position of stars whose light must pass close to the sun in order to reach us, is different from their real position, for then light rays are bent. Now even in this case the curvature of the light waves would be affected chiefly by the magnitude of the attracting mass and its power to draw them away. Of course a greater speed to light might have the effect of resisting somewhat the attracting power of the mass and the curvature would be proportionately less.

3. Our correspondent has hit here on quite an important point in connection with stories of invisibility. It is true that if a man were to make himself invisible by having all light rays pass around him, he himself could see nothing for then no light rays could reach him. The drawing illustrates this.—Editor.)

IN this department we shall publish every month your opinions. After all, this is your magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips up occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old-fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail, no communications to this department are answered individually unless 25c in stamps to cover time and postage is remitted.

From the German Interplanetary Society

Editor, WONDER STORIES

It gives us great pleasure, to find in your Magazine the letter of the *American Interplanetary Society* and we beg you, to tell your readers, that there is in Germany a similar society, our "Verein für Raumschiffahrt e. V. Berlin SW 11, Bernburgerstr. 24." The "Verein für Raumschiffahrt" with more than 1000 members in Germany, Austria, France and Russia is today the greatest European association for exploring rockets and the questions of space-flying and there is no "rocket-scientist" in Europe, who is not a member of our "Verein." The well known names of the most famous members of our "Verein" are. Professor Hermann Oberth, Walter Hohmann, Rudolf Nebel, E. Warm, Willy Ley, Otto Willi Gail, Gerda Maurus (the "Girl in the Moon") Johannes Winkler and Fritz von Opel in Germany. Guido von Pirquet in Austria, Prof. Nikolai A. Rynin, Prof. K. E. Ziolkowsky and Dr. Jakow L. Perlmann in Russia, Robert Esnault-Pelterie in Paris.

The greater part of our members are engineers, physicians, teachers of science, writers, leaders of the great newspapers, scientists and technical men. "The Verein" in its last meeting invited notable men to speak on the more technical and theoretical questions of space-flying—science, Prof. Hermann Oberth spoke about the theory of the Moon-rocket, Johannes Winkler about the theory of rockets with liquids, Engineer Nebel about the construction of the Oberth-rocket and Willy Ley about the history of the rocket. In the next meeting, Willy Ley will speak about "Science Fiction."

The "Verein für Raumschiffahrt" has three rockets in the construction by Prof. Oberth, two little ones for studying the rocket itself and a greater one for exploring the stratosphere with a high speed of 100 km. The first rocket will be started in short time.

The dues of membership are $3 per annum, payable in advance. We give out for our members a monthly "Mitteilungsblatt" and we'll publish in short time our monthly *The Rocket* again, which we have published since 1927.

Men, who want to know more of us may write to Willy Ley, "Verein für Raumschiffahrt e. V." 24, Bernburger Strasse, Berlin SW 11, Germany.

(We are very glad to hear of the splendid progress that is being made in Europe particularly in Germany in the exploration of the interplanetary question. The thousand members possessed by the Society is undoubtedly a strong nucleus for the furtherance of any definite plans for an interplanetary trip that may be made in the future.

We believe that our German friends are to be congratulated on the forward-looking attitude of their scientists and technical men toward the question of space flying. We would be very happy to be kept informed of their progress and would appreciate very much a copy of Mr. Ley's address on "stratosphere fiction."—*Editor.*)

Down With Heart Throbs

Editor, WONDER STORIES

Upon reading the "Reader Speaks" columns of the August issue I noticed Miss Carmen McCable's letter and your footnote.

Miss McCable squawks about romance and all such slush in our magazine which heretofore has been the only real "He-Man's" magazine I could find. If she wants slush let her go to the movies or buy such magazines of which there is an abundance. Why profane a real magazine for the sake of the minority.

I am not a woman hater, in fact I used to get as much thrill as the next fellow out of a nice moonlight necking party. *BUT if* I wanted to read about love, etc., I would buy magazines which make a specialty of such stories and not try to make the authors of a certain magazine conform to my own peculiar ideas which would not conform to their own and which would tend to spoil their technique.

When I want scientific stories I want them to deal with the wonders of science and the possibilities of such science in the future. These stories should be about super-men, geniuses and cool and calculating scientists which would rate them more respect from the reader than would a scientist with tears streaming down his cheeks, a woman hanging onto his suspenders, a squalling kid in one arm and his other hand pulling down a switch that would wipe all humanity off the map. Bah! and a couple more bah's. Keep love and romance in their own magazine, otherwise you would have a magazine which would be in the same class as the rest of the cheap thrillers. You would not be living up to your new slogan, "The Magazine of Prophetic Fiction" because you can't prophesy about love, it's too uncertain.

For several years I have been buying all the science fiction magazines I can find, but if you revert to the primitive as Miss Carmen suggests, count me out as a reader. And now, editor, pull yourself together and give us what you have always been supplying, "SCIENCE, WHOLLY SCIENCE, AND NOTHING BUT SCIENCE" to help you Hanna, and long may you wave under that banner, but may you crash hard if you betray the trust of US, your old readers who gave the magazine its support in its infant stages.

C. K. Rodgers,
318 W. Simpson St.,
Mechanicsburg, Pa.

(As we anticipated, the letter of Miss McCable in our August issue has raised a storm of controversy for and against her desire for more romance. While we agree in the main with Mr. Rodger's point of view, he must not confuse slushiness with romance. We would never permit the sort of sloshy trash that is found in so many present-day magazines, yet that is not romance. What do our other readers think? Should our stories be about cold-blooded scientists, or should the scientists be human, like ourselves with our *normal* human desires? We invite *our readers'* comment.—*Editor.*)

ON LETTERS

BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents, therefore, to make their letters as brief and to the point as they can; as this will aid in their selection for publication? Whenever possible, we will print the letter in full; but in some cases, when lack of space prohibits publishing the complete letter, we will give a résumé of it in a single paragraph.

Suffering from Dyspepsia?

Editor, WONDER STORIES

I have just finished your brilliant chattered "Reader Speaks" in the August issue of WONDER STORIES and have come to the conclusion that all of your readers are suffering from dyspepsia or some irritable trouble for every second letter that I read seemed to be from some chronic crank.

Your readers say that Dr. Keller only looks at the darker side of life in his stories, yet some of your readers have much of the optimist in the way they write their letters.

Another of your critics revolt at the thought of your money making schemes, and yet how would they be able to read your wonderful magazine if you were financially embarrassed.

In closing I wish to say that your two best stories were "The Human Termites" and "A Rescue from Jupiter." The only credit I can give your readers is that they have a wonderful vocabulary of severe adjectives.

Charles Rush Jr.,
3645 Grand Concourse,
New York City.

(Perhaps, Mr. Rush the fault that you find belongs to us. Instead of consigning such "irritable letters" to the wastebasket, as many publishers do, we believe in printing them and allowing our disgruntled readers to air fully their grievances. Unfortunately therefore, in order to accomodate the brickbatters we have been forced to forego printing the many letters of commendation that we receive. In other words, after printing for months and months the nice things our readers have been saying to us, we are giving the brickbatters their innings.—*Editor.*)

Will Blossom Into Achievements

Editor, WONDER STORIES:

I certainly have enjoyed Mr. Gernsback's publications. He is a pioneer editor in the popularization of science; and that means much to a fellow like myself who, in days gone by, had enough laboratory work to remember something of the scientific spirit who is impressed deeply by the great advance in actual scientific achievement and the speculations toward the future that logical extension is leading.

I am getting better informed on a lot of truths that have been uncovered. The field is so large and so interesting; and Mr. Gernsback's master hand is also I feel a guiding hand. His work editorially and careful notes are things we come to rely on. The whole influence is enlargening, broadening and uplifting; and he is one who concedes to the imagination something of its higher place.

These wonder wonderies are better than many a college course. There is something in them of real meat besides the entertainment. I recognize a lot of philosophy, history and keen insight in so many of the able stories that you choose. Doubtless as has been said many times before, scientists find inspiration and even key ideas that will blossom later into actual achievement. I would go without any other magazine before I would give up Mr. Gernsback's.

James O. Walker,
21 North Union Street,
Burlington, Vt.

(We think that Mr. Walker has struck the key-note of our editorial policy. There is a certain type of story that has only a "story" appeal; it is forgotten as soon as the book is laid down. There is another type which details in story form hardly more than laboratory experiments. When one finishes one, he has a suffocating sense of having been compressed into test-tubes and dynamos. There is a third type which recounts the adventures of human beings face to face with the tremendous things of future science, gigantic mysteries of future worlds; nations and worlds battling for their very life. These super-dramas are what we want and print, because they are what our readers want. They interest, thrill and yet remain with the reader as vividly as though he had gone through these actual experiences himself. That is because they have imagination. Such stories we will always print.—*Editor.*)

(*Continued on page 372*)

On Your Vacation

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ANDREW TRAVERS

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REAL DETECTIVE TALES

THE READER SPEAKS

(*Continued from page 370*)

Wanted: A Correspondent

Editor, WONDER STORIES:

I am writing to you firstly to congratulate you upon your splendid magazine. You will realize what a joy it is to me, a keen science enthusiast, when I tell you that here in England nothing of its kind is issued. One has either to read a technical magazine or some pseudo-scientific stories. Your stories are, however, reasonable and serve up facts in a very nice way. I very much appreciate your "Science News of the Month" and "The Reader Speaks." I wish you the very best of wishes and assure you of my warm and continued support.

Now, secondarily, I should like very much to get in touch with someone about 25 years of age in the States. I am a school master and am taking a B.Sc. course at the London University. My particular interest is in physics, chemistry and meteorology

As you will guess my time is somewhat limited and so I should like you to put me into touch with someone. I do not mind whether it is a lady or gentleman.

If your rules do not allow this perhaps you could publish my letter

Francis H. E. Tidmarsh,
M.I H., F.R. Met. Soc.,
100 Glenparke Road,
Forest Gate,
Essex, England.

(We are sure that Mr. Tidmarsh will find from among our readers a number of people who would be happy to correspond with him. Such persons are invited to write to Mr. Tidmarsh directly.—*Editor.*)

The Density of the Ether

Editor, WONDER STORIES:

I wish to commend you on your magazine which I enjoy very much. I would like to ask you a question. I have noticed that Sir Oliver Lodge has figured the comparative density of the ether. Now I have done some figuring on it also. As you know, sound waves travel faster in the water than in the air The thought occurred to me to find the difference in the speed of light as compared with that of sound and so arrive at the difference in density, as between air and ether. Reducing 186,000 miles to feet and dividing by 1,100 (speed of sound in air is 1,100 feet a second) I got a quotient of 9,000,000. In other words if my theory is correct the ether would be 9,000,000 times as dense as air. What do you think of it?

Clarence Tolberg,
Route 2,
Roosevelt, Minn.

(Unfortunately, although Mr. Tolberg has an interesting idea he has confused a number of scientific facts. It is not fair to compare the speed of light and speed of sound in air, for they are different forms of wave motion. It would be fairer to compare the speed of light in air and *in vacuo*. Professor Michelson is preparing to make a quite complete test of the speed of light in a vacuum. It is not expected however that the difference between the two speeds of light will be anything more than 1/10,000th part. Furthermore the ether, if it exists, pervades both airless and atmospheric space, so we can never get far enough away from its effects to really measure it quantitatively. Einstein has stated that he believes the ether theory to be false; and among many other prominent present-day scientists it is losing ground.—*Editor.*)

The Heroine Jumps Off a Cliff

Editor, WONDER STORIES:

I have been reading your magazine for some time but have never written a letter. I was prompted to offer my opinion after reading Miss McCable's letter and your comments, in the August issue.

I heartily agree with Miss McCable as to the necessity of romance in any kind of story, primarily a science fiction story. Most of them are dry enough but when an author does not put romance in his story, well, it just doesn't click, with me anyway. A story with predominate romance where the beautiful blond heroine jumps off a cliff because Percy has been eaten by some prehistoric monster supposed to have been extinct for centuries is just as far to the other extreme. You have a very good heading for your cover, MYSTERY-ADVENTURE-ROMANCE. If your magazine fulfills that it is O. K. in my estimation.

(*Continued on page 373*)

THE READER SPEAKS

(*Continued from page 372*)

Some knowledge of science can be gained by the reader if the writer gives a few formulas with which to explain his point. But when we even are told how the pork and beans, carried on the interplanetary voyage, were cooked it is expecting too much of human nature when you expect a reader to finish the story.

Speaking of human nature brings up another point. Ever since the time of primitive man the story of people's lives, hopes, ambitions have been almost the same as in modern times and in my opinion they will continue to be the same as long as life exists on this earth.

John H. Bishop,
204 Fourth St.,
Falmouth, Kentucky.

(Mr. Bishop besides giving another point of view on the romance-cold blooded controversy gives another sidelight on it. Are our readers really interested in inventions in themselves or are they interested in the effect of those inventions on human beings like themselves? Do great inventions change our hopes, ambitions, hates and fears? If so, what will the changes be like, and what sort of people will we become?

Are our readers interested in knowing how people will love, hate, work, dream and play in future times—or are they simply interested in knowing that marvelous devices have been invented, used and perhaps destroyed? We would like some comments.—*Editor.*)

From Far-Off Australia

Editor, WONDER STORIES:

I have followed your wonderful magazine with interest since its inception but I don't remember seeing a letter in the "Reader Speaks" column from Australia. I want to tell you how much WONDER STORIES is appreciated here. Science fiction is the only fiction I never can get enough of, and your magazine supplies the world's best.

Reviewing the first twelve monthlies and three quarterlies, I have found most of the stories very good; some not so good and a few were pure trash.

The best long stories were: "The Human Termites," "The Moon Conquerors," "The Stone from the Moon," "A Rescue from Jupiter." The worst was "The Reign of the Ray."

The best short stories were "The Space Dwellers," "The World of 100 Men," "The Cubic City," "The Feminine Metamorphosis." The worst were "The Red Dimension," "The Metal World," "The Vapor Intelligence," "In Two Worlds."

The best issues were November, 1929, and May, 1930. The worst were January and February, 1930. The best and worst covers were November, 1929, and January, 1930, respectively.

"The Evening Star" was fairly good but not as good as "The Conquerors" and not to be compared with that mind-staggering masterpiece "The Human Termites." It proves that a man can't be everything. As an astronomer Dr. Keller is a great physician. The end of "The Evening Star" was very weak. I was very sorry to see that brilliant race of "Conquerors" wiped out. Nevertheless Dr Keller is a genius. Otto Willi Gail, Captain Meek and Walter Kateley are I think the best authors. Ed Earl Repp writes good yarns when he can hold back his imagination. "Gulf Stream Gold" proved that.

Lilith Lorraine is an idealist but no scientist. Harl Vincent is not bad but ask him to learn a little about dinosaurs before he uses them in another story. Francis Flagg is another who lets his imagination run away with him. If Raymond Gallun has any more ideas like the one in "The Space Dwellers" tell him to write them up as fast as possible. It was wonderful.

Before closing I must insert a word of praise for that inimitable artist, Paul—he is a world beater. Three cheers for WONDER STORIES.

Cecil Roberts,
176 Toorak Road,
Melbourne, Victoria, Australia.

(Coming all the way from Australia, this letter gives us a good perspective on ourselves. Mr. Roberts has arranged his classifications so neatly and vividly that we have a clear picture where, according to him, we have excelled or fallen down. His letter is so complete in itself that comment is hardly necessary. We have learned much about stories, issues, covers and authors. Who could ask more?—*Editor.*)

The Best Ten Are Chosen

Editor, WONDER STORIES:

First I want to make a few comments on the first volume of WONDER STORIES (the change of name sure is an improvement). Now all you have to do is cut the science out of the text and everything will be O. K.

The ten best stories in Vol. 1 were, in my estimation.

1. "The City of the Living Dead." This story is far better than any other I've read with the exception of a few by J. Schlossel and Francis Flagg. It had an entirely different theme and was written well. It was a masterpiece! Let's have some more by these authors.
2. "An Adventure Into Time." This comes up to my expectations of Mr. Flagg.
3. "The Human Termites."
4. "The Conquerors."
5. "The Evening Star." The last three are some of Dr. Keller's best. They will be remembered for a long time.
6. "The Alien Intelligence." Jack Williamson is following A. Merritt.
7. "The Space Dwellers." Another new idea.
8. "The Land of the Bipos."
9. "Into the Subconscious." A swell story. It made me do a lot of thinking.
10. "The Ancient Brain." Why I like this story I don't know. But I do know that I enjoyed it.

IF you have not as yet seen the SUMMER WONDER STORIES QUARTERLY

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"The War of the Planets"
By R. H. Romans

"The Tower of Evil"
By Schachner & Zagat

"The Eternal Man Revives"
By D. D. Sharp

"The Monsters of Neptune"
By Henrik Dahl Juve

And now for the ten best authors:

1. Francis Flagg. He sure can be depended on to write some good yarns each with a different idea.
2. David H. Keller. Steady Dr. Keller always gives us a good story.
3. S. P. Meek.
4. Harl Vincent.
5. Fletcher Pratt.
6. Ed. Hamilton.
7. Miles J. Breuer.
8. Jack Williamson.
9. Walter Kateley.
10. Clare Winger Harris.

And before I sign off, just a few general comments.

Cut out the science. You're trying to publish a fiction magazine not a text book.

Inspire the covers with a little more wonder. They're getting cooler each month. And please don't continue the white backgrounds. They're dead.

Why not yield to demand and print a few pages of reprints each month.

With the exception of Paul, Winter and Ruger your artists are not good.

Where are those extra pages and illustrations you promised a few issues back.

Why not get some of the old faithfuls like A. Merritt, Stanton Coblentz, J. Schlossel, A. Hyatt Verrill, Ray Cummings, etc., back and get rid of some like Ed Earl Repp and Henrik Dahl Juve whose stories all have the same

(*Continued on page 374*)

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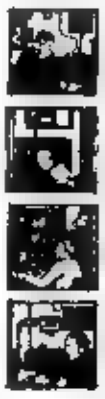

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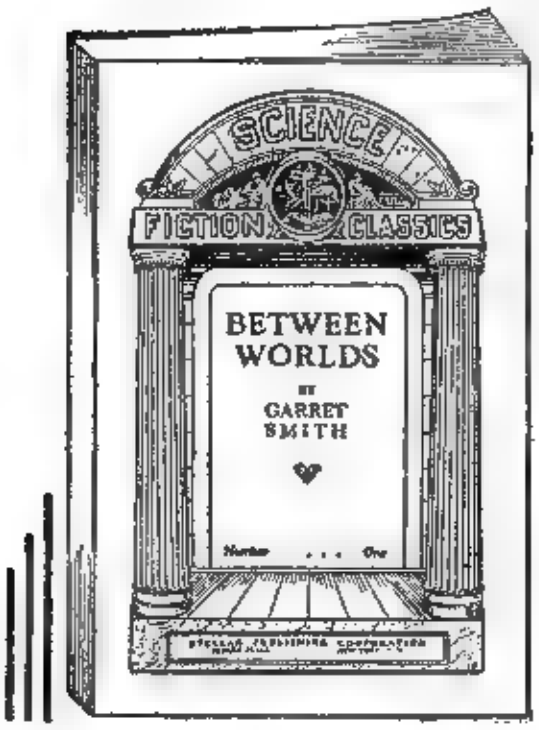

From several of the oldest of interplanetary classics have been selected numerous stories which for many years have been out of print. So that readers of WONDER STORIES may enjoy the privilege of reading these interesting and educational stories at a very small cost, a few of the best are being reprinted in book form—the first of which is BETWEEN WORLDS by Garret Smith. This book is printed on an excellent grade of paper, stiff covers and is of standard book size—nearly 100 pages. They are now ready for mailing, and sell at

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AN interesting announcement of the New Science Fiction Series will be found on page 292 of this issue. Be sure to turn to it and read it carefully.

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THE READER SPEAKS

(*Continued from page 373*)

fundamental plot.

And finally, to sum up my opinion of Vol. I, it was only fair; true, there were many good stories but these were more than matched by the bad ones. I'm especially sick of such plots as

The earth being attacked by some people from the interior or from some other planet, and finally we are rescued by some scientist with his new space-ship, or new ray, or some such thing. This appears in about every other story. (I wonder if there is a peaceful land in the universe.)

The one about a few heroes getting stuck in the interior of the earth is also getting popular. The only good one I've read is Bauer's "A Subterranean Adventure." This promises to be a masterpiece, but that is to be expected of Mr. Bauer.

I sure do wish WONDER STORIES a lot of luck.

Herbert Fixler,
70 Terrace Ave.,
Jamaica, N. Y.

(Mr. Fixler has evidently given the subject of the selection of the best ten stories and authors quite a good deal of thought. His selections are bound to raise a storm of discussion by readers who approve or disapprove of these "All-American" science fiction tens. Who also has a set of tens to propose? We will print the best letters.—*Editor*.)

A Payment of Ancient Debts

Editor, WONDER STORIES:

I have read your scientific fiction for years, but have not heretofore written either of my likes or dislikes, but I must tell you now that I found the story, "After 5,000 Years," by Victor A. Endersby, in the July number, so very much to my liking that I must tell you so.

It is very effectively written. It is short, with that ideal shortness, which consists of writing as many words as completely tells the story, BUT NO MORE! It, to me, is scientific, though the science is a little too much removed from mere material science to be approved by those who fear to look beneath the surface. Such payments of ancient debts are being made every day, though the debtor and creditor almost always are totally unconscious of the fact. They are not always paid in so dramatic a fashion as in Mr. Endersby's story, nor are they always paid by the principals in the original transaction, for often these debts are balanced through others, in a sort of a roundabout fashion, but in all cases, that unconscious (in daily life) entity in each of us, comes to know and understand and agree to the justice of the retribution (so-called).

I hope to see more of this less obvious type of science fiction, as it teaches to the perhaps unconscious reader, a lesson through these stories of others, that something in him understands and profits by.

H. M. Duff,
2098 E. 100th St.,
Cleveland, Ohio.

(Mr. Endersby is a newcomer to science fiction, but by his prize story in the SCIENCE WONDER STORIES Cover Contest and his "After 5,000 Years" he has definitely established himself in the minds of our readers. From what we understand he is a prominent engineer on the Pacific coast and enjoys the writing of stories in which he can express his own original thoughts in the form of science fiction. We expect to publish another of his unusual stories shortly.—*Editor*.)

What Great Vistas Might Be Opened!

Editor, WONDER STORIES.

I would like to use your columns for the discussion of the possibility of our participation in events, past and future, and also as a continuance of that subject as written by R. Stanley Allison in the May issue.

The claim is that all past events are recorded and need only sufficient apparatus to bring them into the scope of our vision. Now suppose that a machine could be constructed combining the best features of electrical apparatus, for receiving electric impulses, and photographic materials, for locating the proper plane on which said recorded events are situated, and reproducing same; supposed to be advancing on into time; what great vistas would be opened to man! The beginning of the lowest form of life and so on up the line until man is reached, the rise and fall of the great governments, great battles

(*Continued on page 375*)

THE READER SPEAKS

(*Continued from page 374*)

of which history speaks only dimly, and the searches of man for truth might be yielded to us. It might even be possible to see the controlling factors of the universe.

As to predestination, perhaps if tremendous forces should be brought to bear, certain events might be forecasted to a very limited extent. However, should we be successful in seeing into the past the reverse might be true and we could look into the future.

I would appreciate criticism of this, as my idea may be very erroneous.

L. G. Gemmell,
300 Wakelee Ave.,
Ansonia, Conn.

(It is true that gradually we are getting to the point where we can truly call ourselves "time-binding" animals. This expression by the way comes from the pen of a noted writer on the progress of man; and he states that man differs from the lower forms of life in that the others are simply "space binding" while we are also "time binding." He meant that we can transfer our knowledge in time, we can build and make provisions for the future; we have history; we have science and we can to a measure predict the future from what we know of the past and present. H. G. Wells stated that thought in a marvelous little volume published some ten years ago called, "The Discovery of the Future."

The noted French astronomer, Camille Flammarion, used the same idea in his story "Lumen," where his subject saw events after they had happened thousands of years ago. This he did by speeding away from the earth at a speed greater than light.

The whole subject is one of the most fascinating in all science, and if man can really see into the future, or if he can get into the stream of time (which a recent scientist said "flows two ways") he will reach a new stage of progress and enlightenment.—*Editor*)

(*Continued on page 376*)

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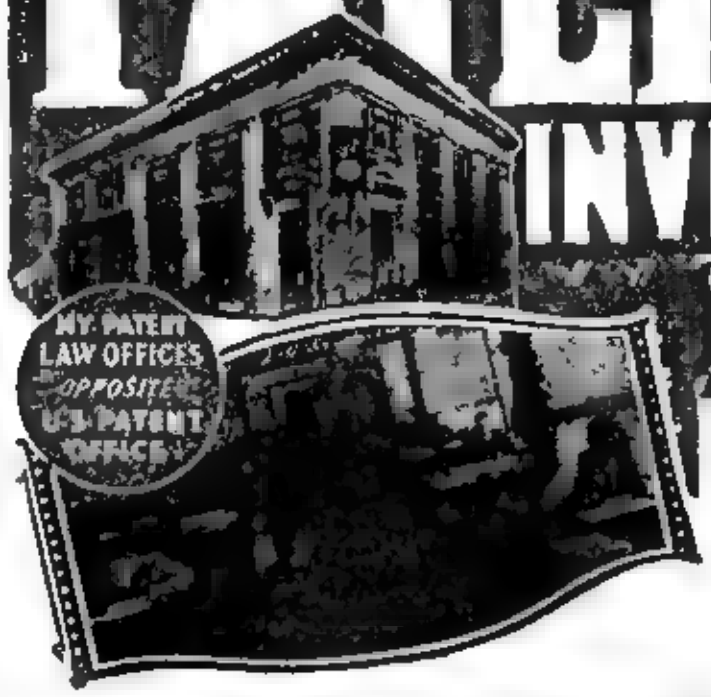

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THE READER SPEAKS

(*Continued from page 375*)

Why Is the Air Good?

Editor, WONDER STORIES:

I have just finished reading the July issue of WONDER STORIES and would like to ask a question concerning one of them. In the story "The Time Valve" by Miles J. Breuer, M.D., I would like to know how they were able to keep the air in the "Photon-ship" while traveling through the universe. The time seemed short to the travelers but in reality they had been flying for two hundred thousand years. How did they keep the air from turning into carbon-dioxide (from their breathing) in all that time?

I would rate the stories as follows.

1. "The Bat-Men of Mars."
2. "A Subterranean Adventure."
3. "The Time Valve."
4. "The War of the Great Ants."
5. "The Red Plague."
6. "The Flight of the Mercury."
7. "After 5,000 Years."

Alfred Brotman (age 12),
2400 Presbury St.,
Baltimore, Md.

(Mr. Brotman, though young, asks a question that wise men could not answer. We can only attempt an explanation by way of analogy, for it is such matters as he brings up that has made the Einstein theories so incomprehensible to the man on the street.

Time is not absolute, it only exists as a conception of our minds. Therefore if everybody in the world were to fall asleep for one hundred years by suspended animation, when they all awoke they would have no knowledge [in themselves] that a century had passed. It is only if one person were awake and alive that he would know that the others had slept that long. And being alive and active and wearing out his body he would show the effects of the hundred years. Now who is right? Did the people sleep for 100 years, or was it only that time to one man, because he measured the time in a way peculiar to himself?

Now the people in the space-ship were there only a very short time, according to their own methods of reckoning. For all practical purposes they had left the world of ordinary time reckoning and had taken on themselves a new system. So although according to us they lived in the space-ship for 200,000 years, according to themselves and their ship the time was but a few hours.

We realize that this explanation is sketchy and incomplete, but hope it clears up most of Mr. Brotman' questions.—*Editor.*)

In Defense

Editor, WONDER STORIES.

Knowing the Gernsback Publications and their editors as I do, I cannot allow the scurrilous attack made on them by one Booth Cody in the August issue of this magazine to go unanswered. Although Mr. Cody's denunciatory charges were conclusively refuted by the editor's rejoinder, I feel that the views of an unprejudiced reader are needed to counteract the effect of Cody's vituperative outburst.

From personal experience, I can attest to the honesty and integrity of the publisher and editors of WONDER STORIES. Not only are they bending all efforts to turn out a superior magazine, but they are altruistically devoted to the furtherance of science fiction. Their laudable work in this field deserves respect and admiration. Mr. Cody's harsh criticism was not only in bad taste, but it was wholly unwarranted.

With assurance of continued support.

Allen Glasser,
1610 University Ave.,
New York, N. Y.

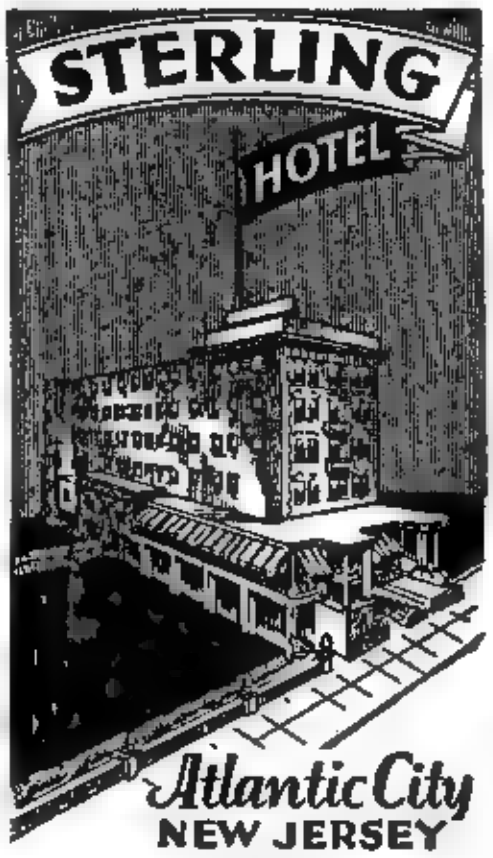
(We thank Mr. Glasser for this letter. We have received a flood of letters attacking Mr. Cody, many of which ask why he did not print his full address. We entertain no hard feelings against Mr. Cody. We hope he will, however, see the injustice of his bitter and unfounded attack.—*Editor.*)

Do Not Let It Dominate

Editor, WONDER STORIES:

I noticed in your August, 1930, issue a letter from a reader who demands more romance. I have no objection to some of it but *please* do not let it dominate your stories. If a reader wants a story of mostly romance, let him buy an inferior science magazine, in which the author tells of his wonderful machines as if they were some sort of magic. Any author can

(*Continued on page 377*)



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THE READER SPEAKS

(*Continued from page 376*)

cook up a story like this.

I buy your magazine not only as a source of amusement but as a source of gaining some scientific knowledge without reading a lot of dry scientific books; I feel that I have learned much since I began reading your magazines. I don't care for explanations that are over my head, but let's have stories with *true science* with action and a little romance to liven them up!

John McReynolds,
600 N. Woods St.,
Sherman, Texas.

(Here is another point of view on the romance vs. cold-blooded question. Mr. McReynolds is evidently a moderate. He sees the desirability of romance but does not want it to dominate the story. We agree with him there. We invite letters from our other readers.—*Editor.*)

Wants "Suitor from Stars"

Editor, WONDER STORIES:

We are very anxious to secure a copy of the book, "Suitor from the Stars," by Colin Craig. We understand that this was published by Messrs. Thomas & Evans of Baltimore, and that this concern is now out of business and the book is out of print.

Perhaps one of your readers has a copy for disposal. If so will he write us?

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333 So. Dearborn St.,
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Stick to the Finish

Editor, WONDER STORIES:

I at last ask the right to make my address through your column. I first started reading science-fiction in the Chicago Public Library, Jules Verne, H. G. Wells, etc., engrossed my attention, then I was attracted to the magazines, of which I still am a subscriber, formerly edited by the Hon. Hugo Gernsback.

With his movement into the field of publishing, I followed. Relying on his former achievements as a guarantee of satisfaction, I entered a charter subscription for five years.

I have continuously followed WONDER STORIES since its origination and to that day express no regret. I admit that sometimes one or two of the stories do not hold me as intensely as the others (though I read all) I accredit that to my particular nature and do not blame the authors or editors.

When I read the unsavory remarks made by such as Donald Peart, and Booth Cody, (hoping that HE was man enough to have signed his right nam), I must revert to slang to ask, "What are you squawking about?"

You two fellows, and any of the others who always like to kick about something are not being forced to buy or even read this magazine of ours. If you don't like it then mind your own business and read something you like. It is annoying to we other readers to see people like you making D—— fools of yourselves, writing such trash.

To me the magazine sure is O. K. Starting from the front cover which is well done, compliments to Paul, I read every story each month and wish there were more. The stories are good, they are all that a person who likes science-fiction can ask for. A few errors or stories that we do not like can readily be excused, for it is human to err, and also every one can not be pleased at once. So keep up the good work and I'll stick to the finish.

Charles L. Moehlig,
5429 S. California Ave.,
Chicago, Illinois.

(We appreciate Mr Moehlig's kind words. As we said in our previous issues, when replying to brick-bats—we cannot please everyone. We suppose it is inevitable after awhile, that people will drift to the type of reading that is most natural to them. And the great body of readers we are building up is composed of those intelligent, imaginative, eager minds who want the best in science fiction in palatable form. This we will continue to give them "though the heavens fall."—*Editor*)

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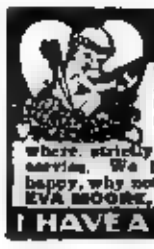

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Be careful. Don't lose your chance. Study the thirteen heads shown here. They all appear different, but two are exactly alike—TWINS! Look at the hat crowns, hatbands, necklaces. The under side of the hats of some are part black and some all white. Each girl has a name. If you can find the twins, send me the names of the two girls who are twins. Mail a post card or letter with the names or mark them with a cross, but be quick.

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SCIENCE NEWS

CANCER'S CAUSE STILL UNKNOWN

The cause of cancer is still unknown to man, says Dr. Shields Warren of the Palmer Memorial Hospital. Of the many theories that have been advanced, no one seems to completely explain the origin of this terrible and yet mysterious disease. Even though there is no one accepted cause of cancer, says Dr. Warren, "there are certain theories that are useful as working hypotheses." Among the causes advanced are those of a parasite, of special foods, civilization, chronic irritation of tissues, heredity. Dr. Warren does not consider heredity of much importance, despite the fact that colonies of cancer-afflicted families have been found. It is in analyzing the peculiar circumstances in each case and searching for its attendant causes that medicine hopes to find the actual cause, if there is a single cause.

RADIO NECESSARY TO AVIATION, SAYS COMMISSIONER

Harold A. LaFount, Radio Commissioner of the Fifth Zone, declared recently that radio was becoming more and more necessary to the aviation industry and that allocation of short waves to aviation was becoming imperative. Government action on requests for allocations is now pending.

It was also announced that two companies, the Wireless Service Corporation of New York, and the Geophysical Research Corporation, had applied for permits for portable stations in order to engage in a scientific way in the search for petroleum.

ARTIFICIAL DAYLIGHT REPLACES ARTIST'S NORTH LIGHT

Synthetic daylight, electrically made, is urged by A. H. Taylor as a substitute for the traditional north skylight, favored by artists for color-matching. Mr. Taylor, who is physicist of the National Lamp Works at Cleveland, has presented to the Illuminating Engineering Society observations which show that daylight from the northern sky, is far from being standard, and actually varies in intensity and its color proportions shift from hour to hour and from day to day.

White light, corresponding to noon sunlight on a clear day in summer, was suggested by Mr. Taylor as the proper standard for accurate color-matching and color-discrimination. Since this is available for only a few hours a day, even in proper season and clear weather, tungsten incandescent electric lamps and color filters are used as artificial suns to produce artificial daylight whenever needed.

Artificial north skylights can be produced artificially at a cost three times that necessary for the production of white light, Mr. Taylor explained. But, like the real article, it is bluish in color; and it makes pink, lavender, magenta, and purple appear bluer than they should, while it suppresses yellow, orange and red.

KILLS FLIES IN TRAPS BY ELECTRIC CONTACT

Experiments to catch insects with light traps are being undertaken on a large scale by Dr. P. J. Parrott of the New York State Agricultural Experiment Station. Though the basic idea is old, no definitely quantitative work has ever been done to see just how helpful this mode of attracting insects can be to harassed fruit growers.

The work, which was started in 1927 with the cooperation of the Empire State Gas and Electric Company, showed a catch of close to 50,000 during the first season for the traps set in orchards; a goodly proportion of the haul being winged adult forms of destructive pests. More codling moths were found in the traps set in cold-storage plants, where fruit had been stored, than out in the orchards; an interesting point that shows the liabilities as well as advantages of modern facilities in fruit distribution.

The most striking results were obtained with traps placed in dairies, and designed to kill house and stable flies by contact with electrical current.

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SCIENCE NEWS

(Continued from page 378)

DEFECTS IN WELDS DISCOVERED BY STETHOSCOPE

The invention by Elmer A. Sperry of an apparatus to make non-destructive tests on welds was disclosed at the technical session of the American Welding Society at Cleveland, Ohio. The device is described as an ordinary physician's stethoscope with a gum-rubber tip to exclude extraneous sounds and give contact on the irregular surface of the plate, besides minimizing the damping of the oscillations at the contact of the stethoscope and the metal. The drum, pipe or plate tested is struck with a hammer in the vicinity under examination and the stethoscope is applied near the striking zone. As each welded joint has a characteristic sound, the sound heard at the first tapping of the joint will show the character of the material at the point struck. When this is determined, the hammer and stethoscope are moved along the weld to discern any irregularities in it. This principle is similar to that found in the Sperry rail-tester, which discovers defects in rails by passing through them an electric current from a generator housed on a car. Any irregularities in the rails cause additional resistance to the current, the result is recorded and a paint-spraying device automatically marks the part of the rail which is defective.

BLIND PEOPLE HEAR BETTER BY LISTENING HARDER

Blind persons do not hear better; they *simply* seem to do so because they listen more closely, reports Mrs. Winifred Hathaway of the National Society for the Prevention of Blindness. The popular belief that blind people have a compensating sharpness of the other senses, such as hearing and touch, is not exactly correct. The special senses of blind people, aside from sight, are no better in the beginning than those of other people and, sometimes, not as good. But experience and specialization on the part of the blind enable them to make their other senses take the place of sight, so that their senses are better utilized than those of normal people. The same thing applies to the deaf, who appear to have much better vision than is normal.

AUSTRALIA HAS GIANT WORMS; ONE ENOUGH FOR WEEK'S FISHING

Earthworms longer than a man and an inch in diameter are reported in the British scientific magazine *Nature*, as the quarry of a naturalist's hunt in southeastern Australia. Average specimens range from four to six feet in length; and one nine feet long was observed by Charles Barrett, member of the expedition. An extreme length of eleven feet is reported. The worms make loud gurgling noises when they retire into their burrows on the approach of a possible enemy. Their greenish-translucent eggs have tough, horny shells, and are from two to three inches in length.

MEAT MAKES MORE WORK FOR THE HEART

A meal which is high in protein content, one that contains a large amount of meat, makes more work for the heart, Dr R. M. Moore, Harvard University physiologist, has found. In experiments in which the effect of muscular exertion, emotional excitement and temperature were carefully excluded, Dr. Moore found that after a meal of meat the heart rate of the experimental subject increased by one-fourth or one-half of what it had been while fasting. That is, if the subject's heart had a fasting rate of 80 beats per minute, the meat meal increased it to 100 or 120 beats per minute. This effect persisted for from 15 to 20 hours, during which time a total of many thousand extra heart beats was reached. The extra burden of work thrown on the heart by a protein meal, if other factors than the rate remain unchanged, is about equal to the total amount of work done by the heart during three or four hours under fasting conditions.

"MIND CURE" IS NOW BECOMING SCIENTIFIC

"Mind cure" is rising from the realm of quackery and becoming a part of scientific medicine, according to Dr William A. White, superintendent of St. Elizabeth's Hospital, Washington, D. C. In properly selected cases, well trained physicians are able to cure diseases by treating the minds of the patients, Dr. White explained.

"One of the most general functions of the human mind is to smooth out inequalities of emotional balance. The healthiest and most normal mind is the mind which is most continuously in a state of emotional equilibrium. A person whose emotions are evenly balanced does not see things out of focus. He is not overly anxious or overly solicitous. He is not too severe nor too complacent. His emotions are reasonably adjusted to the situation as it actually is. He does not see enmity and antagonism where it does not exist, nor does he fear dangers which are made only of thin air."

SLEEPY CROCODILES MAY GET SLEEPING SICKNESS

African crocodiles harbor a form of sleeping sickness caught from the tsetse fly, but this disease is not the human type. The crocodile contracts it by sleeping with his mouth open, thus permitting the flies to walk around and bit the soft membranes exposed. The disease is transferred not by the bite, but when the reptile wakes up irritated and snaps at the flies, thus crushing them and swallowing the parasites or germs carrying the disease. This particular germ requires the crocodile and the fly to complete its life cycle, just as a malarial parasite requires man and the mosquito.

AMERICA'S PREHISTORIC RUINS TO BE DATED

The age of Pueblo Bonito and other famous Pueblo ruins in the southwest is at last to be revealed by the slow but sure detective methods of science. The National Geographic Society states that timbers from ancient trees, collected this summer, are adequate to complete the long-sought tree-ring calendar. With this as a yardstick it will be possible to date any prehistoric pueblo which has any wooden beams left in the ruins.

The principle of the tree-ring calendar is that the width of the ring, added to a growing tree each *year*, varies in dry, moist, or average years, so that any given ring is like a date mark. By examining cross sections of old trees and tracing back the overlapping series of tree-ring dates, it has been hoped that the ancient beams found at Pueblo Bonito might be dated.

WILL UTILIZE SALTS IN THE DEAD SEA

A large organization has lately been formed in New York and London for the purpose of exploiting the salts in the Dead Sea, one of the world's richest depositories of soluble salts. Palestine Potash, Ltd., concentrating on the vast chemical resources of the sea, which is 1200 feet below sea level, will begin work immediately where the Jordan River meets the Dead Sea, and many elaborate drying plants have been built and equipped.

The actual work will be carried out through the use of huge drying plants, equal to those anywhere else in the world. It is interesting to note that this famed Biblical region, which has remained unexploited for so long, will now come into its own as a part of modern industry.

MEDICO CHANGES RACIAL CHARACTERISTICS

Dr. Yusaburo Noguchi, a well-known Japanese scientist states he has evolved a method whereby he is able, to change man to such an extent as to conceal the racial characteristics. He can even change the pigment coloration. The method he has discovered is the result of fifteen years of experiment in various parts of the world.

The Japanese scientist works by means of electrical nutrition and glandular control; and he can, by these means, not only change the color and facial characteristics of an infant, but so change its body as to make it tall or short, slight or heavy.

REJUVENATES BY NEW PROCESS

Demonstrating a new machine in glandular revitalization, Dr. Victor D. Lespinasse, according to the *New York Times*, has rejuvenated an aged man without the usual recourse to glandular extracts or glandular transplantation. The new method utilizes the veins of the individual to be rejuvenated, and the process takes place when certain of his veins are joined.

(Continued on page 380)

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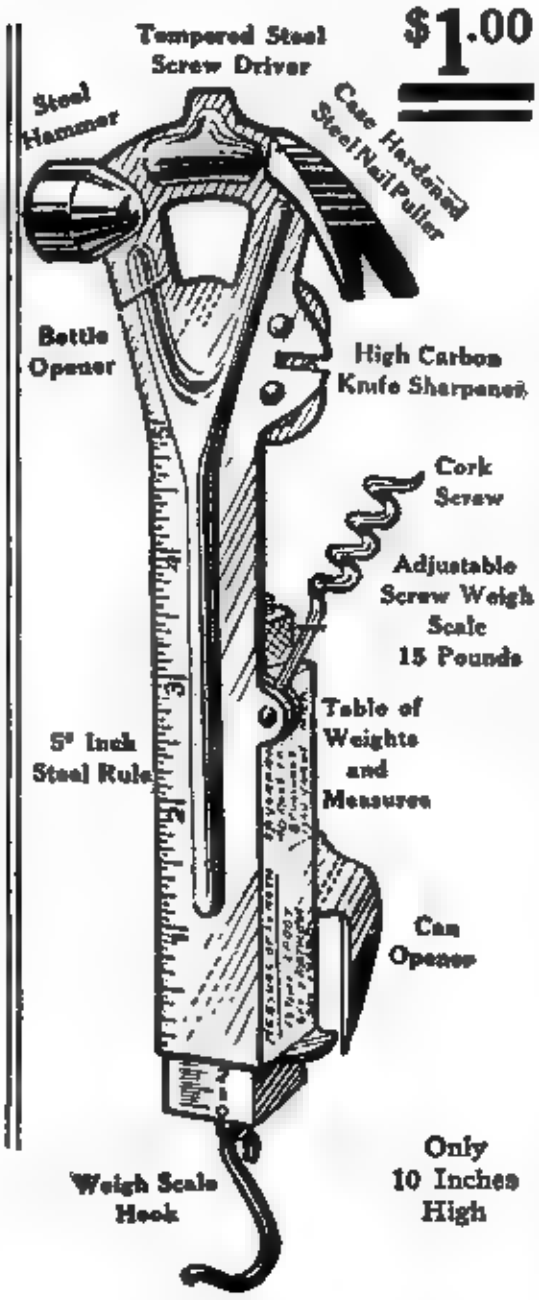

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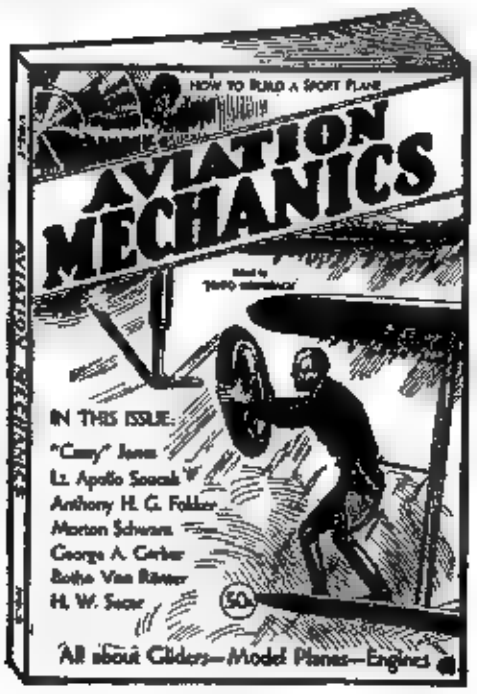

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SCIENCE NEWS
(*Continued from page* .)

The new system is known as *phlebophiobartomy*, which means, literally, vein to vein. In its operation, the *femoral* (thigh) vein is joined to the *pampiniform* vein; so that the blood from the former courses into the latter, revitalizing the glands without the addition of external matter.

YALE WILL BREED APES FOR STUDY

Yale University has purchased a tract of land in Florida of two hundred acres for an ape farm. According to the *New York Times*, the apes will be the subjects of a great number of laboratory tests, special emphasis being placed upon their habits, social relations, life histories, and psychobiological development. The animals will be studied especially in their relation to man.

The ape farm will be under the supervision of the famous psychologist Professor Robert M. Yerkes, who has in the past contributed much to this science through his independent investigations. On the 200-acre farm, the scientist will have the opportunity to direct the study of such interesting types as the gorilla, the chimpanzee, the gibbon, and the orang-utan.

MYSTERY IN COLOR OF AURORA SOLVED

There was long a mystery in scientific circles, as to the origin and cause of a green light ray with a wavelength of 5206 ten-millionths of a millimeter (Angstrom units) appearing in the aurora borealis. This mystery has now been solved by two American astronomers, Dr V. M. Slipher and L. A. Sommer, of the Lowell Observatory, in Flagstaff, Arizona.

In the summer of 1928 these scientists observed a brilliant display of the "Northern Lights." Passing the rays through a spectroscope, they obtained a photographic record of the spectrum. They noticed a green line with a wavelength of 5577 angstrom units which had been found to be caused by a transition taking place in atoms of oxygen high in the earth's atmosphere and excited by electrons from the sun. The new mystery was the presence close to it of another green line which had not been noticed before.

The solution of the mystery of the new color line lies in the fact that atoms of nitrogen undergo a transition from one state to another during the display. Light showing this line can be obtained in the laboratory by electrical discharges in mixtures of ordinary nitrogen and inert gases, such as neon and helium. The value of the new discovery lies in the establishment of the fact that nitrogen atoms are present during displays of the aurora borealis.

X-RAYS TURNED ON MUMMIES

Unopened mummy packs containing within their sealed wrappings the bodies of ancient inhabitants of Egypt, Peru, and North America have been looked into by the penetrating eye of the X-ray in an intensive investigation conducted by Dr. Roy L. Moodie, noted paleontologist. Twenty-five Egyptian mummies, eighty Peruvian mummies, one North American burial and a dozen or more assorted sacred animals and birds have been examined, and more than 300 large X-ray pictures have been made.

The bones which stand forth in the X-ray plates show particularly the diseases and injuries which killed and distressed the world's earlier inhabitants. A mummy of an Egyptian woman shows hardening of the arteries and a "poker spine." Diseases of the teeth are clearly in evidence; and there is one singular case of a well-known modern ailment — impacted wisdom teeth.

SMALL VARIATION FOUND IN HUMAN ABILITIES

The difference between the brightest person of your acquaintance and the dullest is surprisingly small, when their abilities are reduced to a statistical table, says Dr. David Wechsler, eminent psychologist. We sometimes feel awed at the vast range of man's capacities, when we think of the genius of an Einstein or a Shakespeare, and then reflect on the feeble attainments of an idiot. But, leaving out such extremes, it is found that the distances which separate the most able individual from the least able may be expressed by the ratio of two to one.

That is, the normal person with the weakest memory can remember five digits after they are

(*Continued on page* 381)

We Will Reach the Moon in 1950

SO say competent observers of scientific developments in rocket-traveling. Within twenty years the first interplanetary explorer will alight slowly on the moon's surface, using powerful liquid fuel rockets to propel and control his space-ship. As in Lindbergh's transatlantic flight, the world will cheer this intrepid adventure. As in aviation history, regular communication will be rapidly established. Wall Street concerns will hire men to work the mineral deposits on the new world. Advertisements for miners and clerks to live on the lunar planet will appear in the "Help Wanted" advertisements of the daily papers. You can read amazing stories of interplanetary travel in WONDER STORIES QUARTERLY, on sale at all newsstands at fifty cents a copy.

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SCIENCE NEWS

(Continued from page 380)

repeated to him; the best memory marks eleven digits. The person who reacts fastest to a signal acts a little more than twice as quickly as the slowest. The intelligence rating of the near-genius is about twice that of the dullard.

BLUE RATS LATEST EVOLUTIONARY PRODUCT FOUND

If you seek a pink elephant, your friends are entitled to look at you pityingly—or curiously, if they feel that way about it. But if you see a blue rat, you are only looking at the latest product of evolution. Dr. Elmer Roberts of the University of Illinois reports the appearance of a "blue" *mutant* strain of rats in a stock kept at the University laboratories for experiment in breeding. Inasmuch as this color had never been observed before, in 2500 members of several generations of these rats, it is believed that the blue color is a true mutation, or sudden origin of a new evolutionary character.

EINSTEIN VIEWED AS A PERSONALITY

"I am," says Einstein, "solely a physicist." Thus, as reported by George Sylvester Viereck in the *Saturday Evening Post*, he disavows all pretensions of being a philosopher. A born teacher, he explains all his theories and equations in terms of physics, never referring to what is generally regarded as the philosophical viewpoint.

It is well known that the famous German scientist is as home-loving as any other German. Away from the laboratory he is the ideal "paterfamilias". His wife—who is also his cousin—shares his life wonderfully, and is "everything that it is possible for her to be to him." The professor is an excellent violinist, a lover of music, and—strange as it may seem for a scientist—he is deeply interested in religious questions. Born a Jew, he admires most the Founder of Christianity. The world, which has little opportunity of seeing the savant when he is not on exhibition, has been astonished again and again at the multiplicity of his private interests. What it does not know is that Einstein is a man of infinite kindness, infinite gentleness, and infinite reserve.

FLOWERS AND FRUITS POSSIBLE UNDER ARTIFICIAL LIGHT

Flowers, fruits and vegetables raised by artificial light only in underground hothouses are quite within the realm of possibility, so long as there is a plentiful supply of cheap electricity, according to Samuel G. Hibben, lighting specialist of the Westinghouse Lamp Company.

Natural sunlight is not necessary for the normal development of plant life. Artificial light has been used with success in the experimental growing of plants in laboratories, and it is being used now as a regular commercial proposition to hasten the maturing of vegetables grown under glass and the blossoming of cut flowers.

VIBRATION IN ENGINES STOPPED BY DEVICE

The elimination of vibration in engines is claimed to have been accomplished by George J. Dashefsky of Brooklyn, N. Y., in collaboration with officers of the Brooklyn Navy Yard. Full details of the invention were not forthcoming as Dashefsky said the invention would be held a secret for use in the Navy, principally on submarines. The invention called the *asynchronizer* eliminates the synchronism between the natural period of the shafting and the impulse of the engine. The evils of vibration were eliminated right at the beginning, according to the inventor. It could be used in the Diesel engines of submarines and on reciprocating engines.

SENSE OF TOUCH FOUND AID TO LIP READING

People hard of hearing who carefully watch the lips of those who engage them in conversation, may be aided by a new sense, says Dr Robert H. Gault, professor of psychology at Northwestern University

He found that when the hard of hearing watch the lips of a speaker, and at the same time hold in their hands apparatus which conveys the sounds to their fingers in the form of vibrations, they are better able to understand what is said than when they depend on lip reading alone. The equipment which enables the deaf to receive forms of speech through their fingers or the palm

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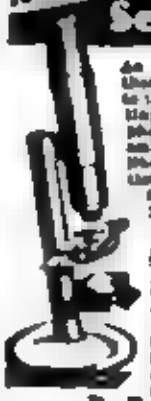

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SCIENCE NEWS

(Continued from page 381)

of the hand is known as a *telefactor*, and consists of a microphone, an amplifier, batteries and a receiver. This equipment has been reduced in size to a conveniently portable instrument, so that it is serviceable for practical purposes.

RADIO WAVES OPEN DOORS

Radio waves have been successfully used in Switzerland to open garage doors, thereby saving the motorist the necessity of leaving his machine in order to open the doors himself. The new device is the invention of the chief engineer of the electrical system of Neufchatel, Switzerland. The driver of the car approaching its garage presses a button on the apparatus in his machine. Radio waves are emitted which reach an aerial on the roof of the garage, and these waves start a motor which automatically throws open the doors.

"HUMAN LABOR WILL CEASE," SAYS MARCONI

Science is to work out the redemption of man from the primal curse in the Book of Genesis, according to Guglielmo Marconi, speaking in an interview with George Sylvester Viereck in the *New York American*. Labor, in the opinion of the world-famous inventor of the "wireless" will simply cease to exist.

By means of splitting the atom, man will become possessed of a power unknown today. As his power increases, and the need for his labor disappears, man will in all probability change to fit himself to the new environment. His limbs will atrophy as his brain grows; he will work only to keep his body in trim. Developing his brain at the expense of his body, he will become a product of the conditions his own genius has created.

BOOK REVIEWS

DICTIONARY OF TECHNICAL TERMS, by F. S. Crispin, 284 pages, illustrated, size 4 by 7, stiff cloth covers. Published by Bruce Publishing Company, New York. Price, $1.25.

This little volume in the words of the author contains, "definitions of commonly used expressions in architecture, woodworking and building trades, electrical and metal-working trades, chemistry, etc." As such it should be quite useful as an aid to the study of text books on the mechanics of these trades, to readers of blue prints, and the amateur who dips into these trades as a hobby. The value of the book is enhanced by a goodly number of little illustrations of the objects referred to.

HEAVEN AND EARTH, by Oswald Thomas. 231 pages, stiff cloth covers, size 8½ x 6. Published by W. W. Norton & Co., New York. Price, $2.75.

This book by the former director of the Urania Observatory in Vienna is divided logically into ten chapters. They are: The Firmament and the Fiery Script; The Sun and the Earth's Motion in Space; An Excursion to the Moon; The Realm of the Planets; Are Other Planets Inhabited, Comets and Meteorites, Wonders of the Milky Way; Evolution of the Stars and Structure of the Universe; Birth of Our World; Where Does the Universe End?

The volume is thoroughly modern containing the story of the discovery of Pluto, the latest addition to the family of solar planets; the Einsteinian theory of the size and shape of the Cosmos and the latest theories on the possibilities of sentient life on other planets.

The author takes a humorous, skeptical view of the evidence that has been supposedly piled up in favor of life existing on Mars. The so called "canals" (derived he says from an expression "canali" used by Schiaparelli, which really meant "channels") are only optical illusions which can be produced in a simple manner by anyone.

The book is clearly and simply written, and despite the lack of illustrations, is quite interesting throughout. The treatment is designed principally for the needs of the lay reader.

NUMBER — THE LANGUAGE OF SCIENCE, by Tobias Dantzig, Ph D. 260 pages, stiff cloth cover, size 6 by 9. Illustrated. Published by Macmillan & Company, New York. Price, $3.50.

The basis of all science, as our author points out, is mathematics, or he calls it "Numbers." For science is a quantitative set of measurements of the elements, forces, events, actions, etc., of our material universe. Without a system of numbers, therefore, it is evident that our science could never have developed to anything like its present stage.

How then did primitive man acquire that grasp of numerology that enabled him to measure the relative values of the elements of the life about him, and theregy to draw conclusions about their nature? And how did that first fumbling for an exact concept of his physical universe lead ultimately to the higher mathematics of today?

These question, Professor Dantzig answers; and he makes us realize that behind the prosaic world of numerology there exists a romance that no once can deny. The book is non-mathematical—being in the words of the author, "a critical survey written for the cultured non-mathematician."

SHORT TALKS ON SCIENCE, by Edwin E. Slosson. 280 pages, illustrated, stiff cloth covers, size 5 x 8. Published by The Century Company, New York. Price, $2.00.

Dr. Slosson was one of the most potent forces in America acting toward the popularization of science. His *Creative Chemistry* still remains almost a classic in that field. His death a short time ago removed from the sphere of our daily life a man trying energetically to keep people oriented on whither the world was going scientifically

This book, his last, is distinguished principally by the enormous field of interest that it covers. There are all told 97 short lectures of a page or two in the three hundred odd pages of the book, and they cover almost every conceivable field of science. No scientific event of our modern life has escaped his attention and to each he devotes a few pages with his own comments on their significance. And as with all of his books, the style is simple, forceful and direct. The book is excellent for those who want to keep up in a general way with what scientists are doing and thinking.

TERRANIA — OR THE FEMINIZATION OF THE WORLD, by Columbus Bradford, A.M. 208 pages, stiff cloth covers, size 8 by 5½. Published by Christopher Publishing Company, Boston, Mass. Price, $2.00.

This book is what might be called, "an utopian romance" for it deals with the social, historical and personal adventures that accompanied the feminization of the world about the year 1950. The book is a plea against war, and as such bears striking resemblance to the play "Lysistrata" by Aristophanes, playing in New York at the time of this writing. A young feminist refuses to marry her beloved in order to devote her life to the world strike against matrimony as a means of ending war. But the man, an army officer, persuades her to the marriage agreeing to assist her with all his resources. The world strike is successful, a federation of the world is formed, the super state is called "Terrania" and our heroine becomes its first president.

The book as a piece of fiction suffers from an inclusion of too much historical material. The result then becomes hardly a story but a thinly disguised tract. However although we cannot state unqualifiedly our support of the feminization of the world, we feel that the means used by the women of this book like the women of "Lysistrata," to accomplish their ends, were quite satisfactory, and we are in complete sympathy with them.

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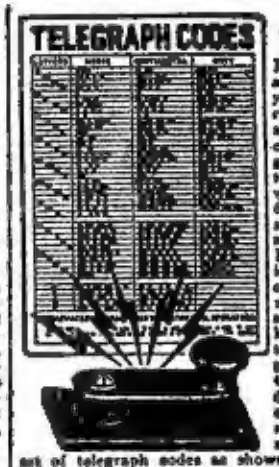

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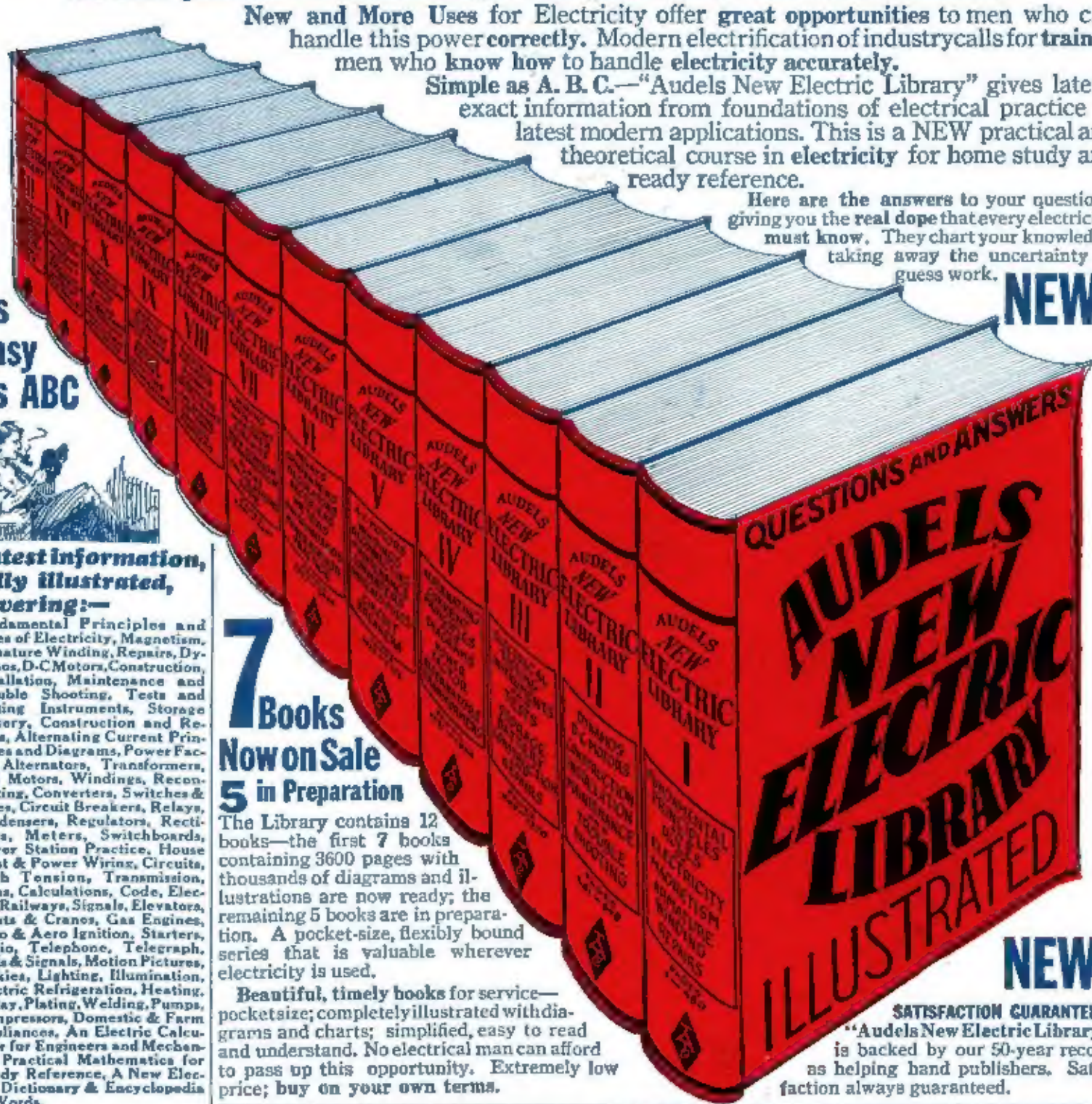

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